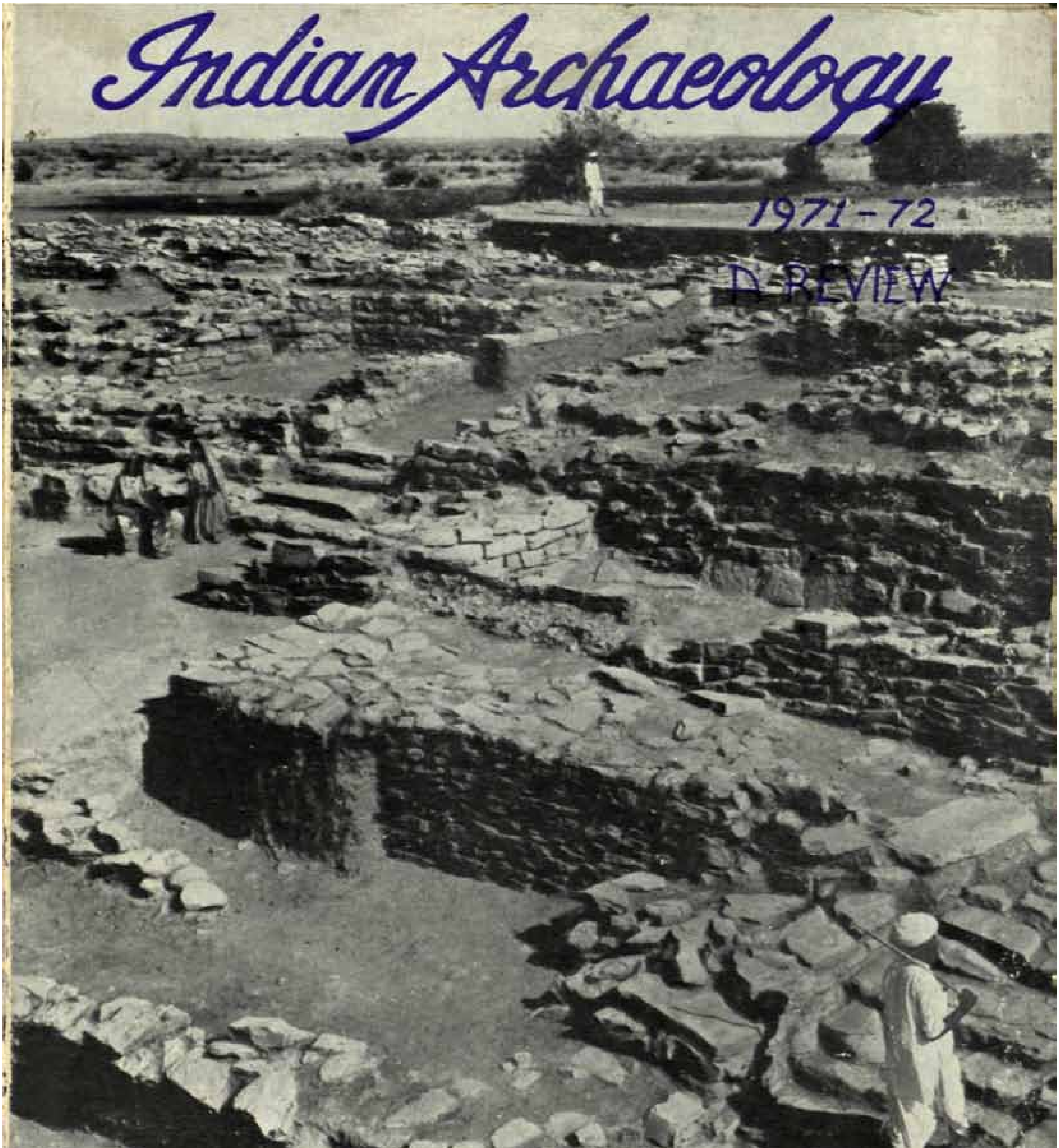
Indian Archaeology

1971-72

A REVIEW



INDIAN ARCHAEOLOGY 1971-72
—A REVIEW

EDITED BY

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Cover
Excavated remains at Surkotada: a Harappan settlement in District Kutch, Gujarat

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PREFACE

The publication of the 1971-72 issue of the *Review* further reduces the number of those issues which had fallen into arrears; the issue for the year 1966-67 is in a press-ready condition and will be sent to the press shortly; the issues for the years 1972-73 and 1973-74 are in various stages of editing. It is hoped that we shall soon be up to date in the publication of the *Review*.

Deeply conscious of the value of the cooperative effort which lies behind such a publication, I take this opportunity of expressing my indebtedness to all the contributors from (i) the universities and other research institutions including the Tata Institute of Fundamental Research, (ii) the State Departments of Archaeology, and (iii) my colleagues in the Archaeological Survey of India, for sending their reports and illustrative material for inclusion in the issue. As usual, however, I do not hold myself responsible for the views expressed in the respective reports.

Lastly, I would like to thank my own colleagues in the Survey who helped me in the various stages of the publication of this issue, including that of editing and printing.

31 March 1975 M. N. DESHPANDE

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INDIAN ARCHAEOLOGY 1971-72

—A REVIEW

I. EXPLORATIONS AND EXCAVATIONS

ANDHRA PRADESH

1. EXPLORATION IN DISTRICT GUNTUR.—During the course of his exploration along the right bank of the river Krishna, Dr. T. V. G. Sastri of the South-eastern Circle of the Archaeological Survey of India[1] collected several Early Stone Age tools (pi. I A) on a high terrace south of Amaravati town. The tools, made of dull brownish quartzite, consisted of choppers and scrappers. Some of them also showed a patinated surface.

Shri Ballabh Saran of the South-eastern Circle of the Survey, assisted by Dr. T. V. G. Sastri and Shri B. Raja Rao, during a small-scale clearance-work at the western side of the *Maha Chaitya,* identified three structural phases. Of these, the first two belonged to the Satavahana period (pi. I B) and the uppermost, to the early medieval.

2. EXPLORATION IN DISTRICT HYDERABAD.—The Department of Archaeology, Government of Andhra Pradesh, explored: (i) the Armenian cemetery, located about 1 km. south of Huppunguda railway station on the Secunderabad—Dronachalam section of the South-Central Railway; and (ii) Gaddimalkapur, 5 km. from Hyderabad. While the former was found to belong to the early nineteenth century, the latter yielded finds of the Qutb Shahi period.

3. EXCAVATION AT GOLCONDA, DISTRICT HYDERABAD.—In continuation of the last year's work *(Indian Archaeology 1970-71—A Review,* p. 1)[2] the Department of Archaeology, Government of Andhra Pradesh, undertook excavation at the site and brought to light many important structures of the Qutb Shahi period (A.D. 1618-1689).

The structures exposed during this field-season included a mosque with three arched openings, parts of palace-complex, residential quarters, guardrooms, and an open hall distillery with necessary adjuncts like three vats, and three rectangular chambers, used perhaps for heating and cooling purposes. One of the chambers adjacent to the vats contained a large drain covered by stone slabs. Many cisterns connected with drains and conduit pipes were also exposed.

Excavation on the eastern side of the main mosque brought to light a flight of four steps (pi. II), flanked on each side by four guardrooms. The existence of the guardrooms near the main entrance indicates that the mosque was perhaps used by the king.

The palace-complex seems to have suffered from a heavy fire as evidenced from deposits of ashy layers and cinders, found in the various excavated trenches. This, in all probability, must have happened when Aurangzeb invaded Golconda fort. The excavation also brought to light an intricate system of drainage connected with manholes as also the arrangements for running water. Glazed tiles were found to be used in the inner apartments.

[1] The Archaeological Survey of India is referred to in the following pages as the 'Survey'. [1]
This publication is referred to in the following pages by the year only.

On the northern side of the palace-complex, three wells (pi. Ill A), surrounded by stone terraces, were exposed.

The residential quarters, laid bare in the course of excavation, had a courtyard often with a well. Each unit had three rooms with a common verandah in front.

On the western side of the site was located a burial site. In all, six burials, marked on the surface by granite capstones, were encountered. These burials were found to be rectangular or oval on plan, with the larger axis oriented north-south, and did not contain any skeletal remains. The grave goods from these burials were confined to a rosary of terracotta beads some of which bore incised names of Allah, Mohammad and Ali in *Sul* style. One of the graves contained two circular terracotta plaques, respectively 7 and 5 cm. in diameter, one of which showed on the obverse names of Ali, Hasan and Hussain and Nadi Ali (pi. IV A) and on the reverse, *Kalema* in a roundel (pi. IV B) and Nadi Ali on the periphery. The other plaque was incised with betel-shaped design in the centre and Shia-Daurd on the periphery.

During the course of excavation, it was found that on the northern side of this hillock there were two rubble walls which formed a narrow alley filled at places with boulders. At some places, the alley was also found to be blocked by walls. On the eastern side of the hillock, another wall was exposed, in alignment of which two balustrade-like structures, separated by a distance of 5-75m., were also found. The area between the wall and the balustrade, however, was found to be filled in with loose *murum.* Adjoining the eastern wall, a big hall, 21*65 x 3*75 m. in area, was exposed.

The excavation yielded many noteworthy finds, amongst which mention may be made of stucco fragments, coins, glass bangles of various colours, long-necked decanters with globular bodies (pi. HIB), iron objects of diverse utility and shape, including arrowheads, nails, door-hinges, knives, etc., gold ornaments like pendants, silver rings inset with semi-precious stones, beads of agate, carnelian, jasper, amethyst, crystal, etc., and a terracotta elephant having small ledges for lighting wicks.

Among pottery were many dishes and cups of Chinese Porcelain Ware of the Ming period. The local ware consisted of a grey pottery of thin fabric, often bearing Arabic inscriptions.

4. EXCAVATION AT PEDDABANKUR, DISTRICT KARIMNAGAR.—The Department of Archaeology, Government of Andhra Pradesh, resumed excavation *(1967-68,* p.2) at Peddabankur for the fifth field-season. The work, as in the previous years, was conducted under the direction of Shri Mohd. Abdul Waheed Khan. In the present season, the area of the excavation was extended towards east, west and north of the third brick enclosure excavated last year. About 2 m. away from the latter, an elliptical structure (pi. VA), constructed in the Pre-Satavahana period, was exposed at a depth of 1-3 m. from the surface. On the north, two circular rubble basements, 75 cm. and 70 cm. respectively in diameter, were exposed. Adjoining these circular basements was found another apsidal structure.

On the south-east of the third brick enclosure, a well, forty-three courses in depth, was exposed. Associated with the well was a floor composed of broken pottery. A few circular basements of varying sizes were also exposed in this area.

In trench E-4, a rectangular brick cistern (2*37 x 1-42 m.) with four extant courses was brought to light. On its western side, two steps were provided to reach the bottom which was found packed with *murum.* Adjacent to this structure, two more square cisterns and a brick platform with many pieces of iron slags were found. About 3 m. away from the

main cistern were exposed two ovens indicating that the complex was perhaps a blacksmith's workshop (pi. V B).

In another trench, two more wells were discovered, each belonging to the Satavahana and the Pre-Satavahana periods. About 4 m. from these wells was found a closed brick drain, probably leading from a bath near the wells.

Among the finds obtained from this season's dig, mention may be made of objects variously of iron (pi. VI A), copper, lead, bone, terracotta (pi. VII A) and beads of semi-precious stones and Satavahana and punch-marked coins. The most noteworthy find, however, was a cup-shaped terracotta object, showing a divinity at the top (pi. VI B). Besides, many stone objects, such as saddle-querns (pi. VII B), pestles, mullers, weight-stones, etc., were also found. The pottery consisted of the megalithic Black-and-red, black polished, chocolate and dull red wares.

5. EXCAVATION AT GOLLATHAGUDI, DISTRICT MAHBUBNAGAR.—The Department of Archaeology, Government of Andhra Pradesh, under Shri Mohd. Abdul Waheed Khan, conducted excavation at Gollathagudi. Out of the four mounds at the site, called here GLG-I to IV, three (GLG-I to III), situated very close to each other, were taken up for operation this year.

At GLG-I, the excavation, covering 18 trenches, each measuring 5*50 x 5*50 m., revealed a temple-complex, consisting of a *garbhagriha,* an *antarala* and a *mukhamandapa.* Several unfinished carvings, representing door jambs, lintels, depicting *chaitya gavaksha* designs, were found in a mutilated condition in and around the *adhisthana.* The *adhisthana* (basement) of the temple was essentially plain (pi. VIII A) with a modulated crescendo on the top. In the middle part, however, were depicted *chaitya* window motifs at regular intervals. The superstructure was found to be completely missing. The *garbhagriha,* measuring 8*50 x 5*35 m. and the *mukhamandapa,* measuring 11-2 m. square, were connected by an *antarala.* Both in the *garbhagriha* and the *antarala,* lime-plastered floors, laid over granite slabs were met with. At the southern end, a slopy brick wall of ten courses, running in east-west direction to a length of 9 metres, was met with. The exact nature of this wall, however, still remains to be ascertained.

At GLG-II, the excavation brought to light the foundations of two temples in addition to four pillar-bases and a lime plastered floor.

At GLG-III, the excavation revealed the existence of a well-planned Jaina shrine, comprising a sanctum, enshrining a seated headless Mahavira (pi. VIII B), in *padmasana* posture, and a *mukhamandapa.* Besides, excavation in the adjoining area also exposed remains of another temple built of stone and brick. The temple-complex consisted of a *garbhagriha, mukhamandapa* and *mahamandapa.* The outer walls of the temple were mostly fragmentary in nature. The entire foundation was laid in brick and mud mortar. The brick *adhisthana* was plastered with lime, depicting floral designs. Over and above the stucco designs, ran a row of plaster motifs crowning double and single *chaitya* arches surmounted by a row of swans. The thinly plastered wall, rising 1-25 m. in height, had recesses at regular intervals for fixing perforated screens.

6. EXPLORATION IN DISTRICT PRAKASAM.—During the course of his explorations, Shri B. Raja Rao found early historical sites at Bannur, Bijinivemula, Satanikota and Virapuram.

7. EXPLORATION AROUND MUKHALINGAM, DISTRICT SRIKAKULAM.—In continuation

of the earlier exploration carried out in the District *(1957-58,* p. 64), Dr. T. V. G. Sastri of the South-eastern Circle of the Survey located early historical sites at Chintamadi Dibba, Jilugubanda Dibba, Kanchi Putta, Neredubandaguddu, and Rallaguddu. Of these, Chintamadi Dibba and Neredubandaguddu also yielded the Rouletted Ware.

BIHAR

8. EXCAVATION AT ANTICHAK, DISTRICT BHAGALPUR.—The Vikramshila Excavation Project of the Survey launched a large-scale excavation of the site which had already been subjected to nine field seasons of digging by the University of Patna *(1962-63,* p. 2). The present work was directed by Dr. B. S. Verma, assisted by Shri B. N. Prasad and Shri S. C. Saran.

The earlier excavations had brought to light a double terraced brick *stupa,* belonging to the Pala period. On all the sides of this *stupa,* at a radial distance of roughly 150 m. is a ring of longitudinal mounds. One of the principal objectives of the present excavation was to ascertain the nature of the structures contained by these mounds. To realize this objective, excavation was taken up at three points, located to the north, south and southwest of the main *stupa.* Altogether, thirty trenches, eleven in the north, five in the south, twelve in the south-western corner and two near the main *stupa,* were laid out.

In some of the trenches, laid out on the south and the south-western sectors, a 3-m. wide boundary wall was traced out. At certain places, this wall was found to be robbed of its bricks right up to the foundation. In all the three sectors, seventeen smaller shrines or monastic cells, roughly 4 m. square in size, were also exposed. Of these, six have been found on the northern mound and the remaining eleven on the south and the south-western mounds. These cells were found to open to a spacious verandah, about 3-10 m. in width. On the northern mound, the verandah was traced to a length of 30 m., while on the south-western one it was exposed to a length of 40 m. The floors of both the cells and the verandah were made of rammed *surkhi* and lime. The entire complex of the cells and the verandah was found to be resting on a 2 m. high plinth. With this method of construction, the floor-level of the verandah and the cells was raised higher than the surrounding working level. A large number of pillar-bases, found at regular intervals against the wall of the cells, indicated that the roof of the monastery was supported on stone pillars. Patches of thick plaster, made of strong *surkhi* and lime, were noticed on the walls and pillar-bases. In front of the cells, were discovered a heap of broken pottery representing perhaps the rubbish accumulated there in course of time. An ashy layer, found inside the cells, indicates that the building was destroyed by some conflagration. Adjoining the outer boundary wall of the northern monastery was found a rectangular structure filled up with earth, which might have served as a *pradakshina patha.* About a dozen Buddha images (pi. IX A), beautifully carved in limestone, were found dumped on the floor of one af the cells of the northern monastery. Nine of these represented the crowned Buddha seated in *bhumisparsa mudra* and one, the standing Buddha, in *abhya mudra.* Some of the images were found to be inscribed with the Buddhist creed. From the south-western monastic area were discovered a small bronze statuette, representing Vajrapani Avalokitesvara and a circular copper coin, badly corroded and defaced. Besides, stone beads, ivory dice, shell bangles, iron objects like nails, joints, etc., bronze objects like bangles and rings, terracotta figurines, both human and animal, terracotta plaques, floral medallions, carved bricks, etc., were also obtained. In the course of the clearance of the main *stupa* it was observed that the *stupa* had

been built over the ruins of an earlier brick structure, remains of which were traceable in the north-western corner. From the clearance work were obtained many detached terracotta plaques, miniature votive *stupas* and a large number of fragments of stone images of the Buddha, including a massive head of the Buddha with curled hair, knotted in the centre and the *ushnisa* on the forehead (pi IXB).

The associated pottery consisted of red, grey and black wares, often slipped, and showing occasionally decorative elements. The forms represented in the assemblage included bowls, miniature pots, carinated *handis,* etc.

No direct evidence about the chronology of the monastery was available. However, on the basis of the inscribed images, the site may be ascribed to the eighth-eleventh century A.D.

9. EXCAVATION AT CHAMPA, DISTRICT BHAGALPUR.—The Department of Ancient Indian History and Archaeology of the University of Patna, under Prof. B. P. Sinha and Dr. R. C. P. Singh, resumed *(1970-71,* pp. 4-5) the excavation at Champa.

In the cutting across the fortifications, CMP-1, an earlier phase of the rampart was identified. The rampart of this phase was composed of two different kinds of soils, viz., red and yellow. The two soil-deposits were at places also found interlocked. Besides a wall, built of bricks of the size 40 x 25 x 7 cm., remains of baked bricks overlain with *surkhi* were also seen on the extant top of this phase. To the west of this wall were found traces of upright wooden posts.

The pottery obtained from the deposits of Phase I of the rampart included black-and-red, black, plain red and the Northern Black Polished Wares (abbreviated hereafter as N.B.P. Ware); the first mentioned ware being more frequent in the lower deposits. Among other finds were beads of terracotta and semi-precious stones, terracotta plaques, terracotta animal figurines and some bone points. A few copper cast coins and some copper pieces were also found resting over the brick-paved floor.

In the cutting CMP-2, deep digging was continued up to the water level without reaching the natural soil. Within the occupation strata so far exposed, three cultural periods with different phases were identified.

Phase IA was represented by layers 15 and 16. From these deposits were obtained: one fine female figurine of ivory (pi. X); toy carts made of tortoise shell and decorated with circlet designs (pi. XI A); stone moulds (pls.XI B, XII A, XII B and XIII A); terracotta animal figurines (pi. XIIIB), including those of *nagas;* and beads of semi-precious stones, glass and terracotta. The pottery of this phase included the N.B.P., black, black-and-red, plain red and grey wares. One of the fragments of the N.B.P. Ware was found painted in a pink pigment. This phase of occupation seems to have been brought to a close by a conflagration, as evidenced by the remains of large-scale burning on the top of layer 15.

Phase IB, represented by layer 14 and 13, is marked with lesser number of finds. During this phase, the N.B.P. Ware decreased in frequency while the grey ware increased. On one of the sherds of the latter ware was seen an incised human face.

Phase IC, represented by layers 12, 11 and 10 yielded: terracotta human and animal figurines, the latter decorated with punched circlet and nail impressions; beads of semi-precious stones and terracotta; and a few bone points and stylus-like objects. It may be noted that objects of iron and copper were found in all the phases.

Periods II and III belonged respectively to the Gupta and Muslim periods.

10. EXPLORATION IN DISTRICT PALAMAU.—Shri Kashi Nath, a Research Scholar

of the Department of Ancient History, Culture and Archaeology of the University of Allahabad, during the course of his exploration in the district as also in the neighbouring Kon region of District Mirzapur (Uttar Pradesh) collected a good number of Middle Stone Age tools from Bhagadeh Ramana, Bhavanalpur, Ghotama, Hardi, Isunpera, Korwa, Kuharabena, Lai Mijaura, Mahaudih, Namadiharamana, Pathardiha Raji, Thelidaga-ramana, Urjungigarhwa and Vahipara. The tools comprised blades, scrapers, points and burins, cores and flakes. Brown patination was a marked feature of the assemblage.

11. EXCAVATION AT CHIRAND, DISTRICT SARAN.—The Department of Archaeology and Museums, Government of Bihar, resumed *(1969-70,* pp. 3-4) excavation at Chirand under the direction of Dr. B. P. Sinha and Shri Lala Aditya Narayan. The objective of the present season's dig was essentially to check the results of the previous excavations.

On the basis of the ceramic evidence, Period I was divided into two phases, the earlier of which yielded only the burnished and unburnished red ware, represented in such shapes as the medium-sized vases with vertical neck and everted rim and bowls. Other finds obtained from this phase consisted of: terracotta beads and marbles; a female terracotta figurine in archaic style (pi. XIVA); bone objects like tongs, arrow-heads, points and drill; beads of steatite and semi-precious stones; microliths; a stone hammer; a quern; and fragmentary celts.

During this phase the houses were made of wattle and daub and were circular on plan. Chunks of mud, bearing reed impressions, were found in large numbers.

Hunting seems to have been the main source of their subsistence, supplemented, however, with cereals. The discovery of charred and semi-charred bones of various animals, birds, fish, *mollusca* and carbonized grains and seeds of wild fruits bear testimony to the above observation.

Phase IB was distinguished by the occurrence of red, blackish grey and black-and-red wares. Both burnished and unburnished specimens were present in the above wares. Miniature pots in the grey ware bore post-firing painted designs in red ochre. Some of the pots in the red ware showed applique decorations. The cultural equipment of this phase was similar to that of the previous phase, the only significant exception being the occurrence of a fragmentary copper bangle. Copper appears to be an intrusive element.

Period II represented the full-blown chalcolithic culture. The ceramics of the Period were quite distinct from that of the preceeding one and consisted of black-and-red, black, grey and red wares, represented in such shapes as dishes-on-stand, pedestalled small cups, vases with straight neck, bowls with narrow mouth, lipped bowls, vases with rusticated base, etc. Some of the vases bore post-firing paintings in white and yellow colours.

Other notable finds included terracotta beads with obliquely incised decorations, stone beads, microliths, querns, stone hammers, bone tools such as socketed arrow-heads, points, and terracotta figurines and copper bangles.

The houses were apsidal on plan and were made of reeds plastered with mud. The longitudinal ovens continued during this Period also. Remains of rice, *masur,* wheat and *moong* were also obtained.

Period III was characterized by the occurrence of the N.B.P. Ware. Other associated wares comprised the black-and-red, the grey and the red.

Objects of iron such as nails, daggers, hoes, and of copper antimony rods, terracotta figurines, beads of semi-precious stones, stone weights of varying denominations, bone arrow-heads, points and styluses and a few cast coins formed the associated finds. The houses, as in the previous Period, were made of wattle and daub.

Period IV was marked by the occurrence of the red ware, belonging to the beginning of the Christian era. Amongst the objects discovered, particularly noteworthy were the following: terracotta figurines with Kushan head-dresses, beads of stone, terracotta ear-studs, beads and net sinkers, objects of both copper and iron, a bone dice, and terracotta skin rubbers (pi. XIV B). The houses were constructed of baked bricks of a standard size.

Period V followed after a long desertion of the site. The associated pottery consisted of the glazed ware, the plain red and black wares. Among the finds, mention may be made of a terracotta plumb-bob, terracotta human figurines, glass bangles, stone pounders and a bone dice. The houses were constructed of re-used bricks.

DELHI

12. EXCAVATION AT PURANA QILA, DELHI.—The excavation was resumed *(1970-71,* pp. 8-10) at Purana Qila for the third season. The objectives of this season's work were: (i) to impart field-training to the students of the School of Archaeology; (ii) to expose the structures of the Mughal Period; and (iii) to ascertain the cultural content of the site prior to the third/fourth century B.C. For this purpose two separate areas (pi. XV) were taken up to the south-east and south of the Qila Kuhana Mosque. The work, as in the previous seasons, was directed jointly by Sarvashri B. B. Lai, B. K. Thapar and M. C. Joshi of the Survey, assisted by Sarvashri K. S. Ramachandran, S. Banerjee, N. G. Ghosh, J. P. Srivastava, A. K. Roy, Avatar Singh, Jassu Ram, J. N. Gandhi, R. K. Sehgal and Manohar-Lai.

The excavation revealed two distinct structural phases of the Mughal Period. Belonging to the first phase were: (i) remains of a stone-flagged court (pi. XVI A) and an adjoining large brick structure (pi. XVIB), with about 1-2-m. thick wall and houses with lime-plastered floors and sunken basins. Most of the structures, however, were built of re-used bricks and rubble, occasionally finished with lime plaster. The structures of the second phase were represented mainly by a *hammam-complex* (pi. XVII). Structurally, it consisted of an underground chamber, showing five rows of dwarf piers of bricks, plastered with mud and bearing marks of burning and with a semi-circular projection towards its eastern side and two other side rooms and an overground drain and parts of floors. Belonging to this phase was also a house with a square cistern (pi. XVIII). In the construction of both these structures, *lakhauri* bricks were employed, although rubble in lime mortar was used in the walls of the *hammam.*

Notable antiquities from the deposits of the Mughal Period consisted of fragments of coloured tiles, terracotta finials (pi. XIX A) with numerous incised and stamped designs and sherds of Glazed ware, Chinese Porcelain (pi. XX A), Celadon Ware and a paper-thin *de luxe* grey ware, pieces of glass bottles, a terracotta lamp-stand and one gold and several copper coins. The gold coin (pi. XIX B), bearing a *dipastambha* (?) flanked by a *sankha* and *chakra* symbols on the reverse, has the following Nagari legend on the obverse; *'Sri singhana-kava(..) devi'.* Other important coins included the issues of some of the Mamuluk and Khalji Sultans and of the East India Company.

A hoard of twenty coins (pi. XX B) containing the issues of late (medieval) Rajput and early Sultanate rulers, was a significant find from the pre-Mughal levels. This hoard was found inside an earthen pot tied in a piece of cloth.

Deep digging at a few places confirmed the earlier known sequence. However, in one of the trenches, in the levels associated with the N. B. P. Ware, a few fine and

thin grey ware sherds, closely affiliated to the Painted Grey Ware, and fragment of an offering stand (?) in red ware were found. Of the interesting finds obtained from the deep digging, mention may be made of a circular seal with early Brahmi characters, a broken terracotta plaque of the Sunga Period, bearing a representation of Lakshmi and a terracotta figurine of a nude headless standing male in Greek style, holding some indistinct object in the right hand.

GUJARAT

13. EXPLORATION IN DISTRICT AHMADABAD.—Dr. R. V. Joshi of the Prehistory Branch of the Survey further explored the microlith-bearing sites in the District, discovered earlier by Dr. Vasantlal Trivedi of village Udrel. Of these, Udrel and Jinjhar form the type-sites. They fall in the Daskroi Taluk and are located on the low ancient sand dunes, situated a little away from the river Meshwa and its tributaries. Two sets of sand dunes were observed at Jinjhar: one group made of weathered brown fine sands and the other of lighter yellow coloured sands. The sandy material of both the types is not hardened and can be easily scraped off with knife. A very thin and stunted grass and thorny bush cover the dunes. No modern settlements are located on the dunes.

The microliths, comprising finished tools, cores, nodules and fragments of raw material, were seen at each of the site examined. As such, these sites represent factory debris. At Jinjhar and Udrel, besides the microlithic material, bone fragments including teeth of cattle were also obtained. The bones are partially fossilized and weathered and are of the type that are usually met with at similar microlithic sites. These two localities, therefore, perhaps represent living sites. No pottery or other antiquities were found on the surface. A few sherds found on the surface seem to be modern although they were found mixed up with microliths.

In order to ascertain the thickness of the archaeological deposit, a 1-m. square trench was laid out on the sand dune near Udrel. Although this trench was dug up to a depth of nearly 50 cm., the occupational debris was recorded only up to 10 cm. from the surface. The deposit was made of fine and light brown sand without any layered structure. A large quantity of raw material in the form of nodules and chips of chalcedony, agate, jasper and allied group of secondary minerals, quartz, and chert was obtained in the excavations. The microlithic blade-cores, a few retouched blades, crescents, triangles, points and a small number of scrapers formed the tool content of this site. A few bone pieces were also found.

The horse-hoof type core-scrapers, end-scrapers and discoidal cores were interesting types in the collection from Jinjhar; fluted blade-cores and crescents and triangles being the commonest. The simple blades, reminiscent of chalcolithic types and trapzes, were, however, absent. There were a few thick pen-knife blades finely retouched on the convex side. Points were rare and showed simple or limited retouch.

The two sites at Aval-Javal (near Kujad) and Bhatpur yielded only a few tools, and are not of much importance.

14. EXPLORATION IN DISTRICTS AHMADABAD, BHARUCH, BHAVNAGAR AND PANCH MAHALS.—The Department of Archaeology, Government of Gujarat, in the course of an exploration in the above mentioned Districts, located the following sites. The sites in Daskroi

Taluk of District Ahmadabad were suggested by Shri V. M. Trivedi of Udrel, while those in Gadhada and Umarala Taluks of District Bhavnagar were brought to light by Mr. Gregory Possehl, a Ph.D. student of the Deccan College Post-graduate and Research Institute, Pune.

(ESA=Early Stone Age; MSA=Middle Stone Age; LSA=Late Stone Age; H=Harappan; and EH=Early Historical.)

District	*Taluk*	*Vtllagelsite*	*Period*
Ahmadabad	Daskroi	Bhavada	LSA
-do-	-do-	Bhuvel	-do-
-do-	-do-	Govindada	-do-
-do-	-do-	Haraniyava	-do-
-do-	-do-	Kubadthal	-do-
-do-	-do-	Kujad	-do-
Bharuch	Jhagadiya	Beleshvar	-do-
-do-	-do-	Shiyali	ESA, MSA, LSA, EH
-do.	-do-	Tejpur	LSA
Bhavnagar	Gadhada	Adatala-2	EH
-do-	-do-	Adatala-3	-do-
-do-	-do-	Bokhalidhar (Lakhanka)	H
-do-	-do-	Chosala	H
-do-	-do-	Dholiya-ni-Vadi (Vanch)	EH
-do-	-do-	Gadhada (Field)	H
-do-	-do-	Hanuman Timbo (Gadhada)	H, EH
-do-	-do-	Ishvariya	H, EH
-do-	-do-	Juni-Lakhanka	EH
-do-	-do-	Lakhanka	H
-do-	-do-	Makavana (Tatana)	EH
-do-	-do-	Nana-Ishvariya	H
-do-	-do-	Oriyo (Chiroda)	H, EH
-do-	-do-	Pralhadagadh	EH
-do-	-do-	Rahalvadar (Chiroda)	EH
-do-	-do-	Rajpipla	H
-do-	-do-	Rajpipla-2	MSA
-do-	-do-	Rajpipla-3	EH
-do-	-do-	Rajpipla-4r	EH
-do-	-do-	RajpipIa-6	H, EH
-do-	-do-	Rajpipla-7	H
-do-	-do-	Rajpipla-8	H.EH
-do-	-do-	Rajpipla-9	-do-

District	Taluk	Villagejsite	Period
Bhavnagar	Gadhada	Tatana	H, EH
-do-	-do-	Vadiya Valo Dharo	-do-
-do-		(Rajpipla)	
-do-	-do-	Valpura (Ishvariya)	-do-
-do-	Umarala	Bhojavadar	EH
-do-	-do-	Bhojavadar-2	MSA
-do-	-do-	Bhojavadar-3	EH
-do-	-do-	Bhojavadar-5	-do-
-do-	-do-	Bhojavadar-6	-do-
-do-	-do-	Bhojavadar-7	-do-
-do-	-do-	Bhutano-Timbo (Vangadhara)	-do-
-do-	-do-	Ghugharalu (Khijadiya)	-do-
-do-	-do-	Jarakhi (Kenya)	-do-
-do-	-do-	Karala-no-Dharo	-do-
-do-	-do-	Phul Timbo (Bhojavadar)	H, EH
-do-	-do-	Phulvadi (Samadhiyala)	H
-do-	-do-	Samadhiyala	ESA
-do-	-do-	Samadhiyala-3	H
-do-	-do-	Samadhiyala-4	H
-do-	-do-	Vanghadhra-2	EH
Panch Mahals	Godhara	Gadh-Chundadi	EH

15. EXPLORATION IN DISTRICTS BANAS KANTHA, KHEDA AND PANCH MAHALS.—Sarvashri R. T. Parikh, K. N. Momin and V. H. Sonawane explored the following sites respectively in the above three Districts.

(LSA=Late Stone Age; H=Harappan; CH=Chalcolithic; EH=Early Historical; EM=Early Medieval; and M=Medieval.)

District	Taluk	Site	Period
Banas Kantha	Varahi	Jhekhada	H
Kheda	Cambay	Budhej	CH
-do-	-do-	Dohada	LSA, EH
-do-	-do-	Galil	-do-
-do-	-do-	Indranaja	-do-
-do-	-do-	Jafarabad	CH
-do-	-do-	Khaksar	LSA, CH
-do-	-do-	Khatnal	EH

District	*Taluk*	*Site*	*Period*
Kheda	Cambay	Lunej	EH
-do-	-do-	Padra	LSA, CH
-do-	Petlad	Pandoli	EH
-do-	-do-	Porda	-do-
-do-	-do-	Sajitra	-do-
Panch Mahals	Godhra	Chundadi	LSA
-do-	-do-	Gadh	EH
-do-	-do-	Kakanpur	LSA, M
-do-	-do-	Nadisar	LSA, EM
-do-	Jhalod	Chunkalia	LSA
-do-	-do-	Lilvadeva	EM
-do-	Limkheda	Naleshwar	EH
-do-	-do-	Randhikpur	M
-do-	Lunawada	Madhvas	LSA
-do-	-do-	Thanasavali	EM
-do-	Santrampur	Mangadh	LSA
-do-	-do-	Waruna	EM
-do-	Shehra	Matria	EM
-do-	-do-	Tarsang	LSA, EH
-do-	-do-	Vadi	LSA, EM

16. EXPLORATION IN DISTRICT JUNAGADH.—Dr. S. N. Rajaguru, Dr. G. G. Majumdar, and Sarvashri S. A. Sali and V. S. Lele of the Deccan College Post-graduate and Research Institute, Pune, explored the lower reaches of the Hiran and Saraswati rivers near Prabhas Patan and Somnath with a view to studying the alluvial fills, tidal flat deposits and the valley and coastal morphological features.

The bed-rock exposed in this area was found to be a miliolite formation which is post Gaj (Miocene) and pre-Stone Age tool-bearing alluvial fills of the Late Pleistocene. The presence of these shallow water littoral formations, up to 60-80 m. above sea level, and 30-40 km. inland from the present coast, clearly indicates that the region under consideration was submerged under the sea during the Early Pleistocene. Owing to the emergence of this region in the latter period, the rivers like Hiran and Saraswati eroded their valleys almost up to their present bed-level or slightly below it. The erosional phase was followed by cut and fill stages during the Late Pleistocene. There are about three types of alluvial fills characterized by channel gravels and overbank flood loams. The exposed thickness of these fills is not more than 6-8 m. and the lateral extent is less than 2 km. The erosional phase between alluvial fills is sometimes represented by a fossil-soil-like horizon, as observed on the right bank of the Hiran near the bridge joining Veraval and Kodinar.

A good number of Early Stone Age tools, consisting of handaxes, choppers and scrapers were collected by Prof. H. D. Sankalia and Dr. Z. D. Ansari from a modern bed and from a bouldery pebbly gravel exposed almost at the bed-level and on the right bank of the Hiran, about 1*5 km. upstream of the above bridge. A few Middle Stone Age tools were collected from a pebbly gravel-bed (about 3 m. thick) exposed in the old bed of the Saraswati near village Badalpur (20°53' N, 70°29' E), about 4 km. south-east of Somnath temple. Both Early as well as Middle Stone Age tools were found to be somewhat rolled and were made on dolerite, basalt and tachylite.

At Badalpur, the tool-bearing fluvial gravel has been unconformably overlain by an oyster bed (1-m. thick) of semi-marine origin. The occurrence of a dead oyster bed at an elevation of 8-3 m. above Mean Sea Level and about 6 km. inland from the present coast clearly points out changes in the sea level even after the occupation of this area by Early Man during the Late Pleistocene. The relative chronology of various alluvial fills is at present a little obscure. C-14 dating of oyster beds, exposed in this area, will throw more light on the chronology and environment of Early Man from this part of Gujarat.

17. EXCAVATION AT PRABHAS PAT AN, DISTRICT JUNAGADH.—With a view to laying bare house-plans of the pro to-historic period as also to knowing further details of the culture-equipment of the period, excavation was resumed *(1956-57,* pp. 16-17) at Prabhas Patan (Somnath). The team which worked under the direction of Prof. H. D. Sankalia consisted of Dr. Z. D. Ansari and Dr. M. K. Dhavalikar of the Deccan College Post-graduate and Research Institute, Pune and Sarvashri J. M. Nanavati and C. M. Atri of the Department of Archaeology, Government of Gujarat. They were assisted by Sarvashri C. G. Padwal, R. B. Sapre, Abhayankar, V. K. Nagpure and S. K. Kulkarni, all research students of the Deccan College and Dr. C. M. Mazumdar and Sarvashri P. D. Chudasama and P. S. Khatri of Department of Archaeology, Government of Gujarat. The excavation revealed a sequence of five cultural periods.

Above the virgin soil was a 1-5-m. thick deposit of flood, over which the first settlement seems to have taken place in a regular manner. Since pottery and other finds were met with in the flood-deposit, it may be surmised that some sort of a habitation must have existed in the adjoining area before the flood.

Period I *{circa* 2000-1800 B.C.) was characterized by the following ceramic industries: (i) coarse red-grey ware; (ii) red slipped ware; and (iii) black-and-red ware. The red-grey pottery was represented by *kundas* with flaring sides, flat bottoms and decorated (incised) rims (pi. XXI A). The red-slipped ware showed a highly burnished surface sometimes with parallel or oblique ribbing. The black-and-red ware was represented in the same shapes as the red-grey ware. Besides, a black-painted red ware, akin to the Late Harappan in Gujarat, was also met with.

Among the other finds mention may be made of segmented faience beads and a blade-flake industry of chalcedony.

Period II *(circa* 1800-1500 B.C.) was characterized by the occurrence of the Prabhas Ware. The vessels in this Ware are of fine fabric and are treated with a pinkish or orange slip which in several cases had turned grey because of peculiar conditions of firing in the kiln. It was painted in purple or dark-brown, with geometric designs, such as groups of vertical and oblique strokes, wavy lines, hatched triangles and lozenges, etc., set in panels or registers (pi. XXI B). The shapes such as the dish-on-stand, big storage jar with heavily beaded rim, etc., were mostly copied from the Harappan Ware. The most prominent vessel in the Prabhas Ware was a sub-spherical bowl with a featureless rim.

Among other finds mention may be made of a variety of beads, including segmented beads of faience, micro-beads of steatite, etc.

Remains of a house, rectangular on plan (3-80x2-45 m.), and built of large flat slabs of miliolite limestone were exposed.

Period III *[circa* 1500-1200 B.C.) was marked by the introduction of the Lustrous Red Ware; the Prabhas Ware also continued to be used. The most noteworthy feature of the Period, however, was the discovery of an extremely complex structure (pi. XXII) built of boulders of miliolite limestone set in mud mortar. The structure appears to be a unit of six

different houses, each consisting of two rooms, one big (about 3.5 X 1.5m.) and the other small (about 1.5 X 1.5 m). In the larger room were found four large flat stones set in mud mortar to form some sort of platform near the entrance. It may be noted that each large room had such a stone platform. This structure was enclosed by a wall beyond which was possibly a road. On the opposite side of this structure in the east were found two more houses. Of these, one was of the twin-room type and the other of one large room (3-4 x 1-55 m.) The layout of the structures shows elaborate planning which no doubt was a Harappan legacy.

The noteworthy finds of this period were: (i) a steatite seal-amulet (pi. XXIII A and B), showing seven stylized deer on the one side and five on the other; (ii) a flake of obsidian, (pi. XXIIIC), probably an import from West Asia; and (iii) a flower shaped gold ear ornament (pi. XXIII D).

The site remained unoccupied till about the fourth century B.C. This gap in the occupation is stratigraphically represented by a 30-cm. thick weathered layer, pale-black in colour.

Period IV {*circa* fourth century—first century B.C.) was represented by a fortified citadel. The fortification-wall, over a metre in width, was built of dressed stones, set in mud mortar, and had bastions at cardinal points. The principal ceramic industry of the period, however, was plain black-and-red ware.

Period V {*circa* first century B.C.—sixth century A.D.) was represented only in certain areas of the site and was distinguished by the occurrence of the Red Polished Ware. The Roman contact is indicated by the find of a fragment of an amphora. Besides, a few terracotta figurines, belonging to the Kshatrapa and the Gupta periods, were also found.

18. EXCAVATION AT SURKOTADA, DISTRICT KUTCH.—The Excavations Branch of the Survey resumed *(1970-71,* pp. 13-15) excavation at Surkotada for the second field-season. The work was directed by Shri J. P. Joshi, with assistance from Sarvashri K. R. Chary, V. V. Rao, A. K. Sharma, Dr. Arunkumar, and Sarvashri H. N. Singh, C. Margabandhu, R. K. Roy, M. B. Limaye, L. K. Jain, M. Singh, N. G. Banerjee, S. V. Sutaone, M. D. Puranik, J. S. Dubey, S. R. Nikhar, P. M. Bhope, V. R. Sharma and Pyara Singh. The objectives of this season's work were: (i) to confirm the stratigraphical sequence established in the last season; (ii) to find out structures of the earliest period in the citadel- and the residential-complex; (iii) to uncover the rampart, gateway, bastions, etc., both in the citadel and the residential areas; and (iv) to locate the cemetery and to excavate a few burials. To realize these objectives, an area of 140 x 45 m. lying on the southern side of the entire mound was excavated horizontally, in 10-m. squares. Trenches were also taken on the western side of the citadel and the lower residential area as also in the centre of the respective areas. The cemetery, belonging to the earliest period, was located to the northwest of the habitation, and four graves were opened. This season's digging also confirmed the sequence of three-fold cultures as established earlier. The Harappan Culture was found to be more or less continuous throughout the occupation of the site. In the light of this season's excavation, however, the sequence has finally been labelled as IA, IB and IC (fig. 1) instead of I, II, and III as reported earlier.

The earliest occupants of the site were Harappans with some affiliations with an antecedent culture. These Harappans built a fortified settlement at the site consisting of a citadel and a residential-complex (fig. 2). The citadel was constructed over a platform of hard yellow rammed earth which was contained by a fortification-wall built of mud and mud-brick (size: 40x20x 10 cm.) with a rubble veneer of five to eight courses on the inner side. The basal width of the rampart was approximately 7 m. It was plastered on the inner

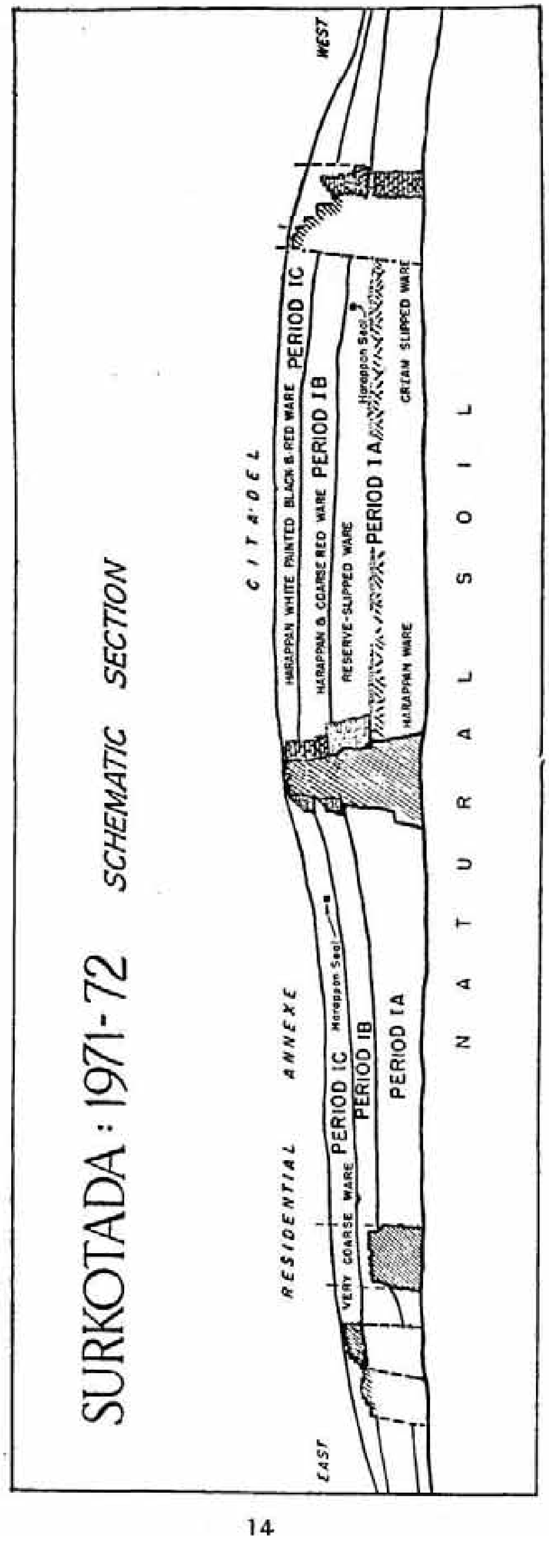

SURKOTADA : 1971-72 SCHEMATIC SECTION
EAST
WEST
RESIDENTIAL ANNEXE
CITADEL
VERY COARSE WARE
PERIOD IC
PERIOD IB
PERIOD IA
Harappan Seal
HARAPPAN WHITE PAINTED BLACK & RED WARE
PERIOD IC
HARAPPAN & COARSE RED WARE
PERIOD IB
RESERVE-SLIPPED WARE
HARAPPAN WARE
PERIOD IA
Harappan Seal
CREAM SLIPPED WARE
NATURAL SOIL

FIG. 1

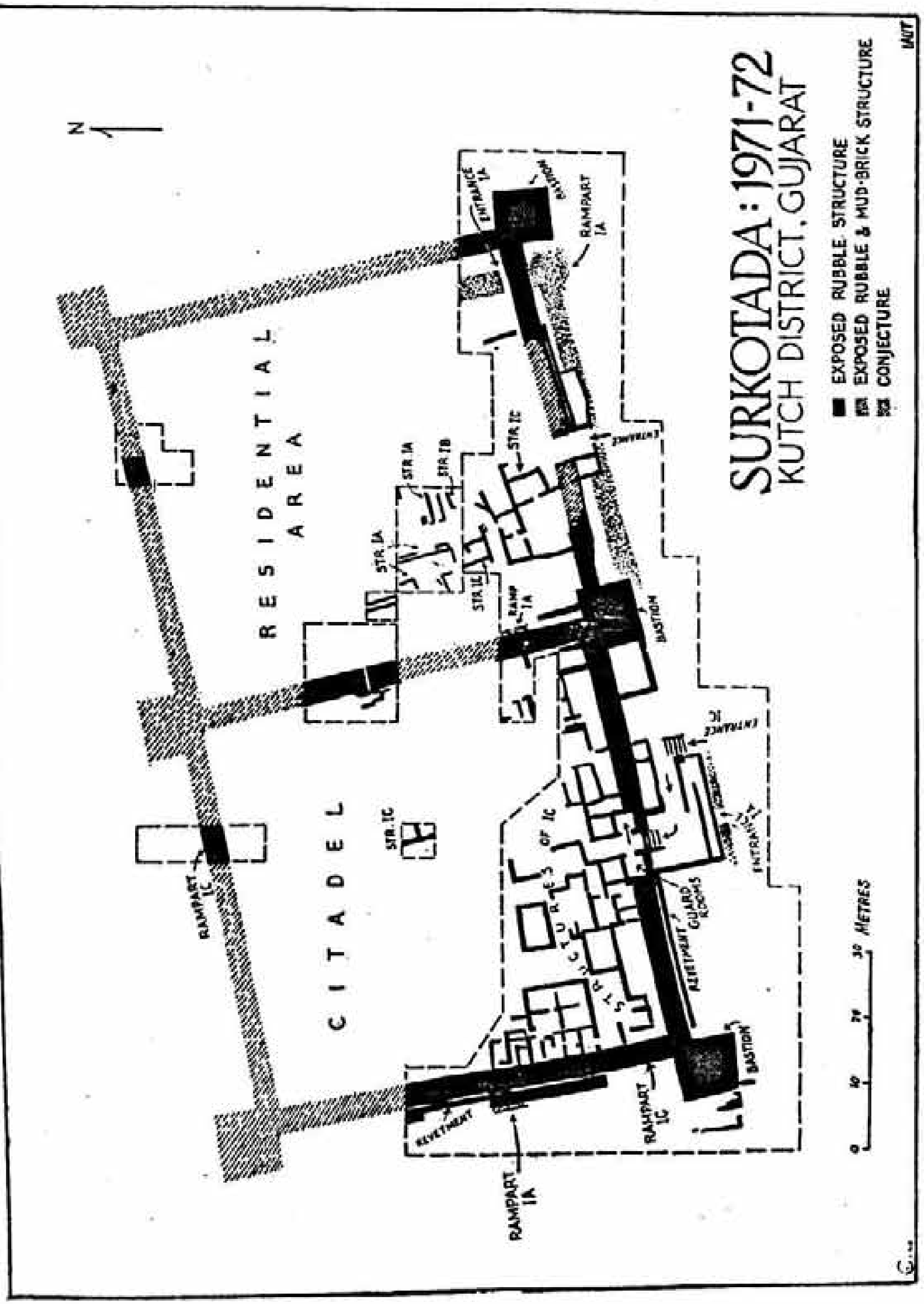

SURKOTADA : 1971-72
KUTCH DISTRICT, GUJARAT
EXPOSED RUBBLE STRUCTURE
EXPOSED RUBBLE & MUD-BRICK STRUCTURE
CONJECTURE
N
RESIDENTIAL AREA
CITADEL
RAMPART IA
RAMPART IC
BASTION
ENTRANCE IA
ENTRANCE
ENTRANCE IC
RAMP IA
STR. IA
STR. IB
STR. IC
STRUCTURES OF IC
GUARD ROOMS
REVETMENT
0 10 20 30 METRES

FIG. 2

side with 5-cm. thick clay. Four stages of construction, each separated from the other by a thin whitish clay-band, were noticed in the fortification. At a latter stage, a buttress of mud-bricks, having a width of 1-70 m. with a rubble cushioning, was provided on the eastern side of the citadel rampart. The citadel had two entrances for inter-communication with the residential annexe, one on the southern side and the other on the eastern side. Around the residential area which was located adjacant to the eastern fortification-wall of the citadel, a mud-brick fortification, having a width of 3-25 m. was also provided. On the south-western side, it still stands to a height of 1-80 m. and shows remains of a gateway.

Though three phases of structural activity have been recognized during Sub-Period IA, no complete house-plans could be exposed. In the residential area, a drain with two phases of construction (pi. XXIV) a bath-room with a small platform and a soakage jar kept outside attest to the well-known drainage system of the Indus Civilization.

From the deposits belonging to this Sub-period were obtained typical Indus pottery, both plain and painted. Among the latter may be mentioned scenes depicting sun motif, pipal leaves, banana trees, deer, cranes, peacock, fish and fish-scales, latticed bands and lozenges, opposed solid triangles and dots, separate or joined together with zig-zag lines. Notable shapes met with were the well-known Indus goblet and the beaker along with dish-on-stand, perforated jar, cup with perforated lug-handle and jar with S-profile. Besides, a few polychrome sherds having consecutive arches painted in black and white and a few vases with mat surface and broad black bands on the neck seem to remind the pre-Harappan Kalibangan and Kot-Dijian types (pi. XXIX). A significant feature of this Sub-period was the find of a number of slow wheel-thrown fabrics, consisting of a red-slipped polychrome ware, a polytone cream-slipped ware, a reserved slipped ware and a deep red-slipped ware (fig. 3). All these wares, though appearing from almost the very beginning of the occupation, show a marked concentration, though never exceeding 7 per cent of the total, in the upper half of this Sub-period. Another noteworthy trait was the total absence of the White-painted black-and-red Ware in the deposits of this Sub-period.

Among the other finds mention may be made of painted and plain terracotta marbles, toy-cart wheels, terracotta cakes, stone pestles, saddle querns, sling stones, cubical weights, a few bone tools, a fragmentary ivory comb and a few pot-sherds bearing painted Harappan script (pi. XXX C). Besides, a steatite seal, depicting a typical unicorn along with the script (pi. XXX D) was also obtained from the upper levels of the Sub-period.

That the people of this Sub-period were practising pot-burials as one of the modes of the disposal of their dead is evidenced by the exposure of four such burials in the cemetery, located to the north-west of the habitation. In one of the burials only one dish-on-stand and a few pots together with small fragments of human bones were found. The burial (fig. 4) consisted of an oval pit (with the longer axis along east-west) dug up to a depth of 30 cm. At the floor of the grave-pit were placed pots with or without bones. The pit was subsequently filled up with loose earth and finally sealed by a cairn of random rubble and a vertical slab placed towards the west. Some of the burial-pits were distinguished by a massive covering slab. The burials of the latter variety contained only pottery. This feature of keeping huge stone-slab on the top of the pit is so far unprecedented in Harappan contexts.

In Sub-period IB, the Harappan pottery and the other wares of the previous Sub-period continued to be used, though in a diminishing frequency. Though the pattern of the citadel and the residential annexe continued to be the same, the width of the fortifica-

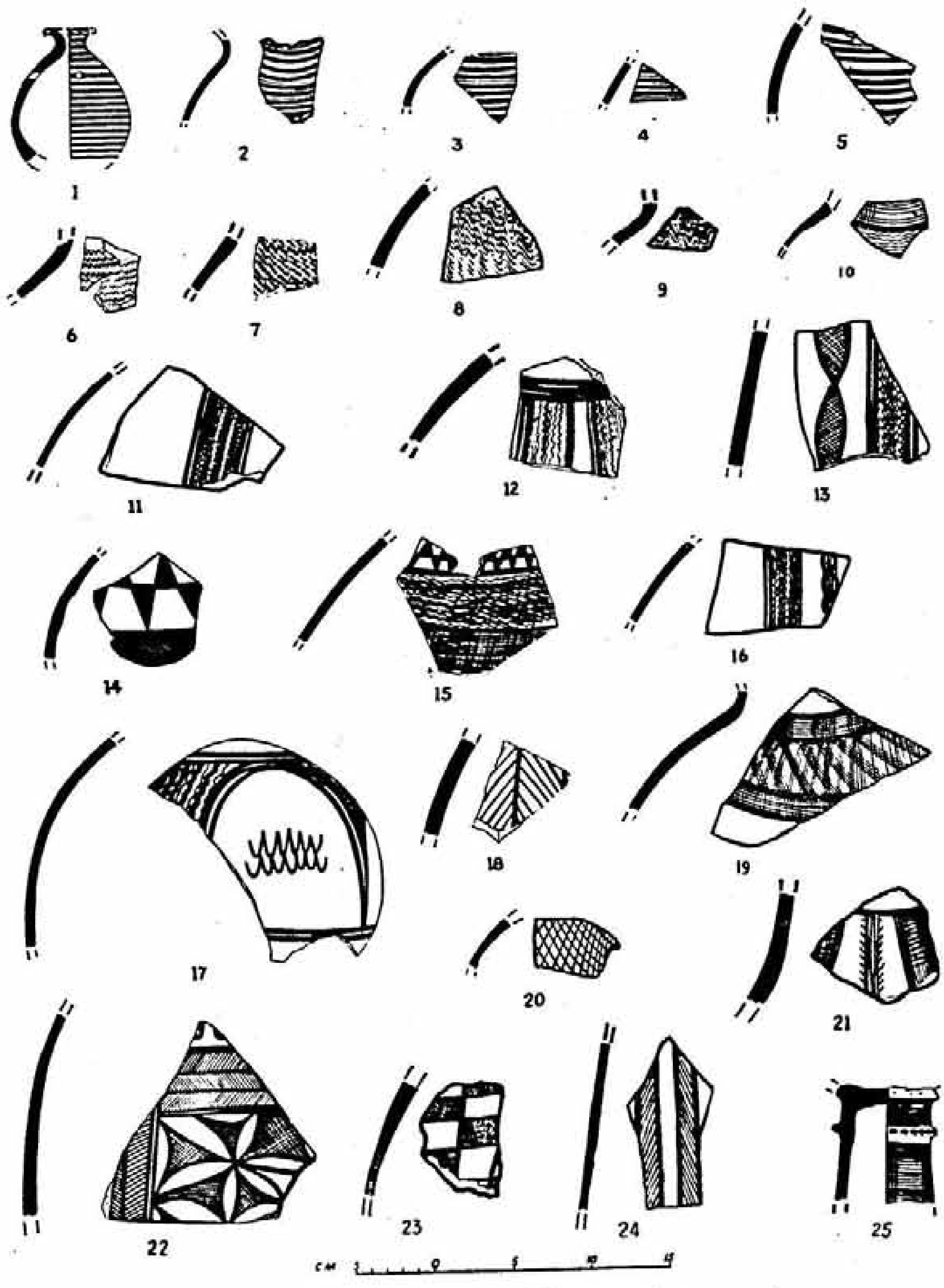


FIG. 3. *Surkotada : non-Harappan pottery*

tion wall was reduced to 6 m. and a mud-brick reinforcement was added to its inner face of the citadel on the eastern side.

The dominant ceramic industry of this Sub-period consisted of a coarse red ware, which though starting from the middle levels of Sub-period IA (2 to 10 per cent) formed the bulk of the ceramic yield (nearly 70 per cent) in this Sub-period. This ware is less frequently decorated. The designs, painted in black, comprise short vertical strokes on the rims, horizontal and vertical latticed bands, sometimes bordered with wavy lines and sometimes separated by what looks like a thorny bush, multiple horizontal bands crossed by groups of vertical straight lines, multiple wavy lines within horizontal bands, and a fly-whisk. Incised decorations consisted of a few criss-cross bands and hatched lozenges.

The other noteworthy finds of the Sub-period comprised terracotta marbles, spindle whorls, chert and chalcedony blades, copper celt (pi. XXX A), rings and bangles and a few beads of semi-precious stones.

At the close of the Sub-period, a thick but uneven layer of ash, indicating a widespread conflagration was noticed throughout the site. Nevertheless, the continued use of the Harappan Ware in the succeeding Sub-period indicates an uninterrupted occupation of the site.

During Sub-period IC, which marked the advent of a new people using the White-painted black-and-red Ware (fig. 5), the fortifications of the citadel and the lower residential annexe were reconstructed in stone. The fortification-wall had an average basal width of 3-5 to 4 m. and was provided with bastions on the corners (pi. XXV). On the southern side of the citadel portion, a gateway-complex having a 10 x 23 m. projection contained steps and a ramp leading to the entrance of the citadel (pi. XXVI). At either side of the passage, which was 1-7 m. in width, was a guard-room. Besides, an equally wide entrance was also provided on the eastern side of the citadel for inter-communicating with the residential annexe. Subsequently, the passage was partially blocked (pi. XXVII A). The residential area had also a separate entrance on the southern side.

The citadel contained houses (pi. XXVIII), of which one had upwards of nine rooms. In the residential area on the other hand, an average house was found to comprise five rooms, arranged on three sides of a courtyard which might have been used as a cattle-pen. In front of the houses was a platform for sitting or selling merchandise.

During this Sub-period, while the Harappan Ware, including a relatively higher proportion of pointed-bottomed Indus goblets, appears to have got a new lease of life, the coarse red ware, though represented by almost all the types of the previous phase became less frequent. The distinguishing feature of this phase, however, was the introduction of a hand-made red ware of granulated texture, which accounts for 40 to 70 per cent of the ceramic yield. The ware is distinguished by simple applique and incised decorations. Another distinctive ceramic of the Sub-period was the White-painted Black-and-red Ware represented by large and small bowls with or without carination, basins with short thickened rims and a few stud-handled bowls. Besides, an undecorated crude black-and-red ware and a few red or cream Ware sherds, having among others, spirals painted in black or purple were also found.

Others finds from this Sub-period consisted of: (i) one hoard of steatite and carnelian beads, including two etched ones; (ii) cores and blades of semi-precious stones; (iii) terracotta bulls (pi. XXXI A); spindle whorls; a fragment of a square tank (pi. XXVII B), cart-frames, and wheels; (iv) an inscribed terracotta seal without any animal depiction (pi. XXX E); (v) one chisel of copper (pi. XXX B), measuring 3-05 to 3-2 cm.; and (vi) a hoard of copper beads and bangles (pi. XXXI B).

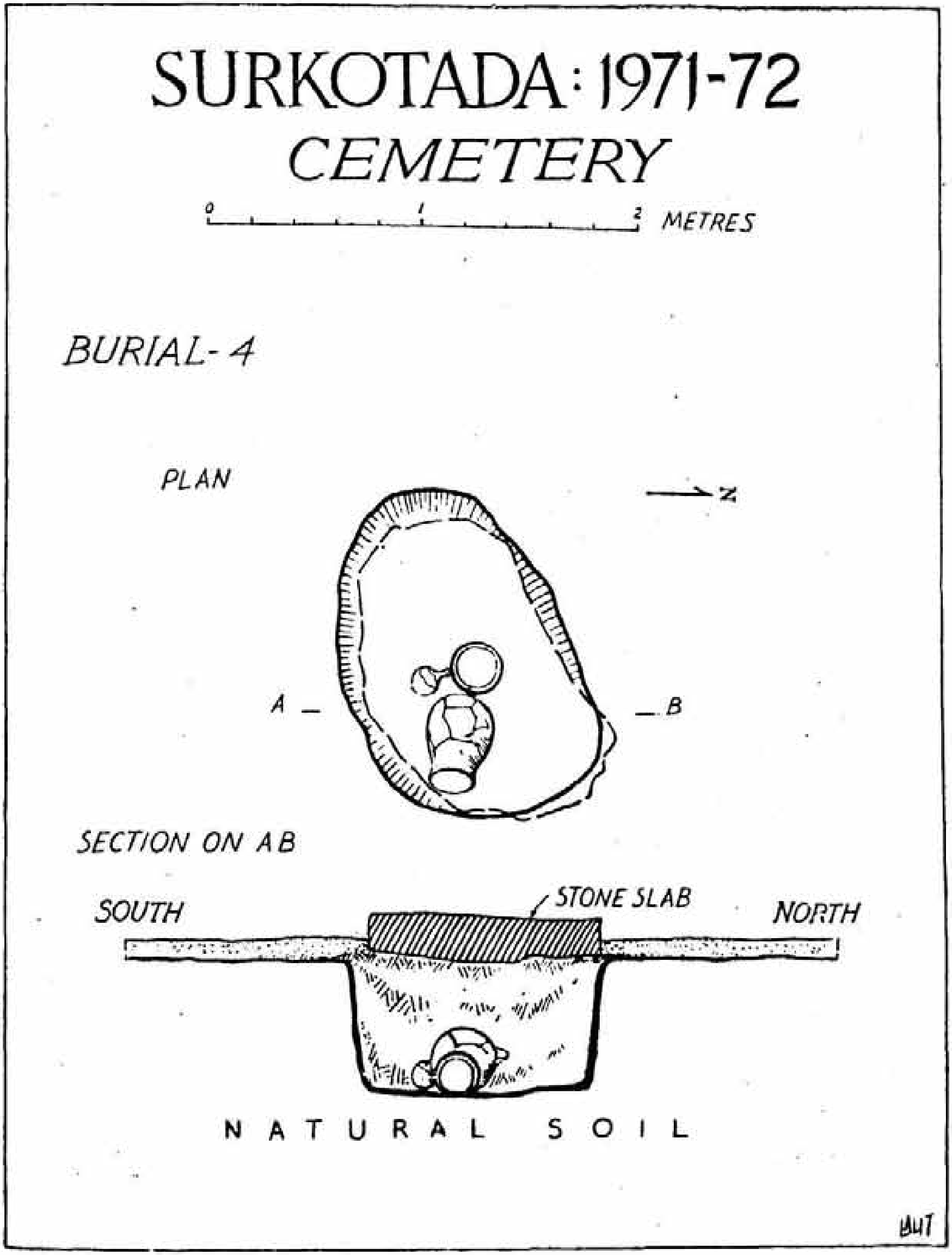

SURKOTADA: 1971-72
CEMETERY
0
1
2 METRES
BURIAL-4
PLAN
N
A
B
SECTION ON AB
SOUTH
STONE SLAB
NORTH
NATURAL SOIL

FIG. 4

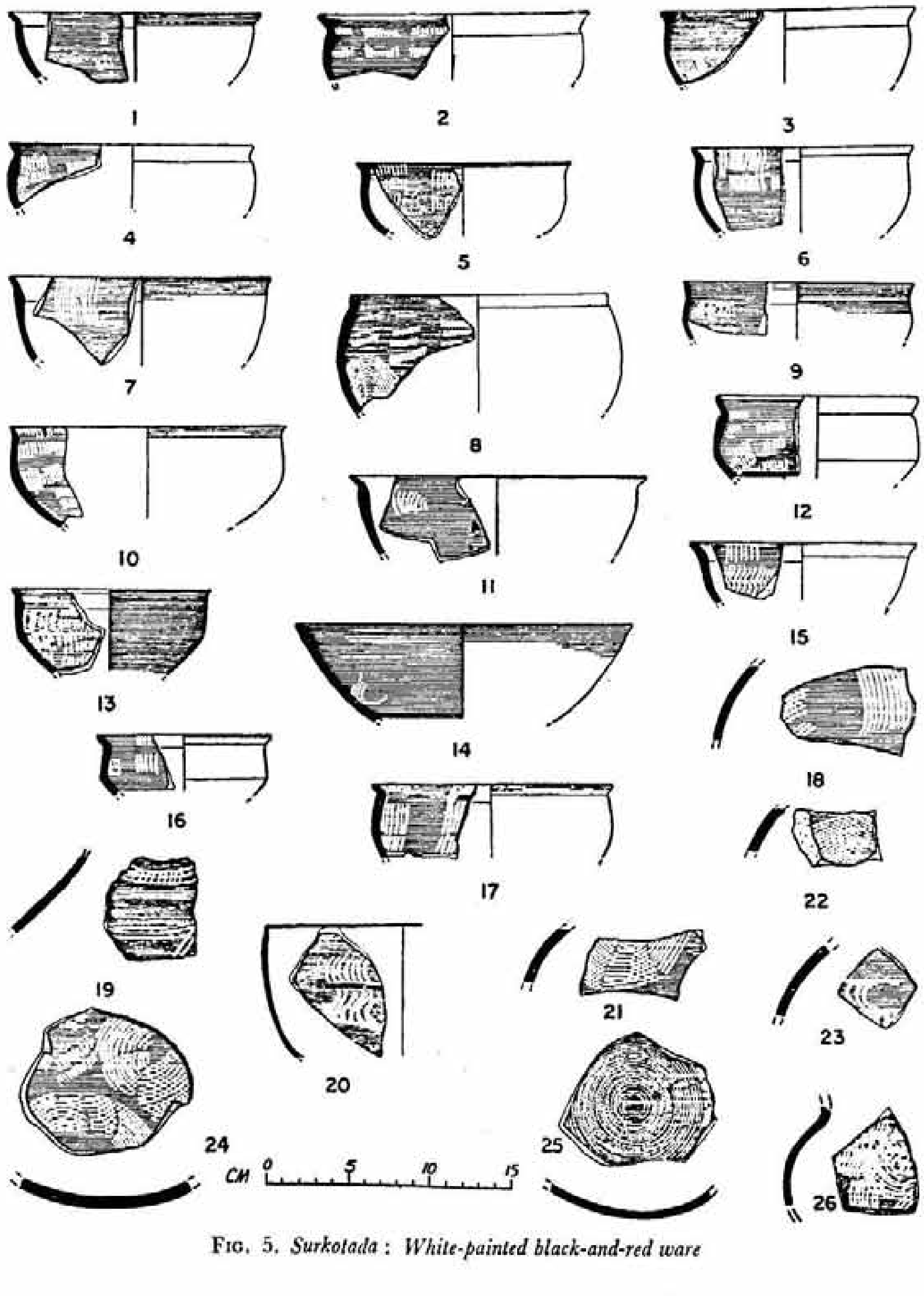


FIG. 5. *Surkotada : White-painted black-and-red ware*

A preliminary study of the animal bones from the different Sub-periods of the site revealed three categories of animals: (i) animals which were either fully domesticated or were in the process of domestication like cattle, sheep and goat, swine, dog, ass *(Equus onegar indicus),* horse *(Equus caballus Linn.),* camel and fowl; (ii) animals that live in the houses or in the vicinity of the township—hog, shrew, rat, etc; and (iii) wild animals including those that were hunted for food, like *Nilgai,* antelope, deer, hyena, wild boar, wolf, ass *(Equus onegar indicus),* comb-duck, hare, rabbit and fresh-water fish. Pieces of elephant-tusks and camel bones were also obtained from the last period of occupation. In case of the bones of cattle, fish, fowl, sheep, goat and wild animals like deer, bear, etc., a good number of them were found to bear cut marks, besides being occasionally charred pointing to their use for food. Evidence for the extraction of bone-marrow from various bones was also observed.

The occurrence of the bones of wild animals was found to decrease in proportion from the earlier to the late levels, indicating the gradual decrease in the practice of hunting. In the earlier levels, animals particularly cattle, sheep and goat, were more robust. The robusticity shows gradual decrease towards the later stages, with an evidence of stall feeding and breading in Sub-periods IB and IG. A closer examination of the third phalanx (found in good numbers) of cattle shows the increase of Pedosis and Exostosis towards the upper strata pointing to the increasing dependence of man on this animal for draft purposes. The bony growths on the third phalanx, mostly of *Bos* show that this animal was employed for agriculture. Some of the bones, especially split shafts and long bones, were used for making tools, such as scrapers, piercers, points, etc. The noteworthy feature of the collection is the occurrence of bones of *Equus caballus Linn.* (pi. XXXI G) in the deposits of Sub-period IC, though a lot of *Equus* bones were obtained from the earlier levels as well.

A preliminary study of some charred grains from Period IG brought to light seeds of wild plants, mostly herbs and grasses, and over thirty plant-species and few grains of *ragi* of the cultivated variety.

19. EXCAVATION AT CHAMPANER, DISTRICT PANCH MAHALS.—The excavation at Champaner, the medieval capital of Gujarat, was continued *{1970-71,* p. 15) this year. A survey of the area between the lower fortification-wall and the hill had revealed that the portion below the Mohoti Gate as well as parts of Mohoti Gate itself were developed by the Gujarat Sultan Mahmud Begda.

An earlier phase of the fortification-wall was traced around Machi. It was constructed from the Khapra Kodia, and on the north-west of Machi extended eastwards till it joined the Sahanshah Gate where guard-rooms are still visible. Continuing beyond this point the fortification-wall was traced along the eastern face of the Hill where two more gates were located.

Outside the fortification-complex was the annexe made by the Gujarat Sultans, for strengthening which rock was cut and the sides were straightened. Old road patterns were changed and additional towers and walls were added.

From this area, hill tracks, connecting the upper fort with the lower plain on the Halel side, were traced. The passage was guarded by fort-lines and out-posts of imposing dimensions. It is quite likely that Humayun might have used one of these tracks during his attack on the hill. These tracks which were bridged wherever necessary are still in use.

The standing structures on the hill as well as in the cantonment area were also explored. Here, buildings of the palace-complex were exposed. Besides, streets, mosques, compounds of buildings, graves, etc., were also noticed.

20. EXPLORATION IN DISTRICT SURAT.—In the course of his exploration in the District, Shri K. P. Gupta of the Western Circle of the Survey obtained Middle and Late Stone Age tools from Kharera and Bhilwara. While the Middle Stone Age tools consisted of scrapers on chalcedony, agate and jasper, the Late Stone Age tools comprised blades, scrapers, fluted cores, points and awls.

Shri N. M. Ganam of the same office collected microliths from Khambia on river Puma and also from Moti Phalod.

21. EXPLORATIONS IN NORTHERN GUJARAT AND RAJASTHAN.—The Cambridge—Baroda team consisting of Dr. B. Allchin, Dr. K. T. M. Hegde and Dr. S. A. Gaudie, continued their work in the area. Further studies of the sand dunes, lying in the windward direction of the Pavagarh Hill, which forms the south-western tip of the Aravalli Hills, revealed a buried soil profile within the dune, indicating thereby that there had been more than one phase of major dune building activity in the region. It was, therefore, considered profitable to explore the dunes lying in the windward and lee of the Aravalli Hills in northern Gujarat and Rajasthan, so that the climatic fluctuations in the Late Quaternary may be properly understood. Exploration was concentrated over such areas where there are natural lakes, so that possible human association could be established with the different phases of the dunes. The dunes around Budha Pushkar lake and Sambhar lake were, therefore, carefully explored. Environs of Budha Pushkar yielded rewarding result. There, the dunes show the following five phases:

Phase I: arid condition, poor vegetation cover, and transportation by wind and widespread dune formation on the windward and lee of inselberga.

Phase II: marked increase in precipitation; stabilization of dunes; weathering of dune-surface and formation of a metre deep, decalcified, acidic Ratlhem type of soil in the sand. On this land-surface, a number of Middle Stone Age sites were found. Some of these sites also yielded blades and burins.

Phase III: arid condition followed by sand movement; the weathered land-surface on the dunes was buried underneath by sand accumulation.

Phase IV: less arid condition; once again stabilization of dunes and concretion of dune-surface and *accacia* and grassy vegetation cover. A number of Late Stone Age sites were found on the concreted dune-tops.

Phase V: owing to overgrazing at present, there is some sand movement on the dunes.

Around Sambar lake, evidence of these five phases in the dunes was again recorded, but no tools were found. At Benara, 25 km. north of Jaipur, Middle Stone Age and Late Stone Age tools were found in the same context as at Budha Pushkar.

HARYANA

22. EXPLORATION AROUND PINJORE, DISTRICT AMBALA.—During a preliminary reconnaissance in the valleys of the upper Sirsa, Jhajra and Kaushalya, the last two being the upper tributaries of the Ghaggar, Shri R. S. Bisht of the Department of Archaeology, Government of Haryana, made certain geomorphological observations. Four terraces, at respective heights of 1-5, 7, 15 and 25 metres from the bed of the river Sirsa, with a possibility for another, were located. A similar story is repeated in the adjoining Ghaggar valley where there are five Terraces.

T_x may be seen between Kalka and Ratpur (pi. XXXII A) above Naggal village at Barhgodam, Baddi and Dana.

T_2 was seen at many places. On an exposed river section near Marhanwala (pi. XXXII B), it was found to be made up of small and large pebbles, boulders and clay capped by a silt deposit.

T_3 is represented only at a few places in both the valleys. An exposed section in the Khandiala Khad (pi. XXXIII A and B) to the west of Kalka revealed a succession of three deposits, the lowermost (2-m. thick), a soft pale silt; the intermediate (2-m. thick), a semicompact gravel-bed, yielding rolled artifacts; and the upper (60 to 90 cm. thick), a sandy clay.

T_4 of the Sirsa and T_5 of the Ghaggar are identical deposits of recent origin.

The valleys yielded tools of the Early, Middle, Late and New Stone Ages. Besides, sites yielding the Ochre Colour Pottery and early Medieval sculptures were also located.

Two large choppers, quite rolled and made on buff sandstone, were collected from T_2 at Marhanwala. At least one of them was found *in situ* in the gravel bed and the other was picked up from a ravine cut into the same Terrace. These are crudely flaked unifacial tools recalling Early Soan tradition. The same horizon yielded a pick, made on a long cylindroid pebble. Similar objects were also seen *in situ* in the pebbly gravel of the T_3 in Khandiala Khad. The same horizon also produced a handaxe, a cleaver on a large pebble flake, all in an advanced stage of rolling and made on buff sandstone.

The next tool-collection belongs to a flake industry found on open air sites of T_x and T_2: The latter around Gorakh Nath temple on Pinjore-Nalagarh road yielded the largest number of flakes and cores of Soan, Clactionian, Proto-Lavallois and Lavallois techniques.

A high tableland of $T_{1?}$ locally called Tangar, due west of Kalka Railway Station, yielded flake tools of more advanced stage. The artifacts include a prepared discoidal core, a miniature pebble chopping tool, a blade knife, side-scrapers, a core, two points (one each on a lavallois flake and a core) and flakes. The same Terrace near Pinjore yielded a few curious shouldered hoes of triangular shape. These are made of either sandstone or quartzite. Two partially broken ground stone axes on sandstone were also picked up at Ratpur.

At Marhanwala, another two sites, yielding the Ochre Colour pottery, were located.

Early Medieval sculptures were obtained from Gorakh Nath Mandir, Kabir Chaura, Kalka Barhgodam, Kalka Mandir, Kumhara-ki-Baoli, Marhanwala, Navannagar and Ratpur.

23. EXCAVATION AT RAJA KARNA KA QILA, KURUKSHETRA, DISTRICT KARNAL.—In continuation of the last year's work *{1970-71,* pp. 15-16) Dr. U. V. Singh and Shri Suraj Bhan of the Department of Ancient Indian History, Culture and Archaeology of the University of Kurukshetra undertook excavation at Raja Karna Ka Qila with a view to ascertaining the sequence of cultures in other parts of the site. Three trenches, called KKQ-2, KKQ-3 and KKOj-4 were laid out, respectively on the northern, eastern and the south-eastern slopes. The latter two trenches, however, were partially dug without reaching the natural soil. But for a late deposit, revealing a single course of a fragmentary wall *lakhauri* bricks, the remains belonged to the "early historical period, characterized by a red ware decorated with stamped symbols. KKQ,-2 was excavated in a stepped manner to the natural soil which was reached at a depth of 8-80 m. from the surface of the mound. The cultural sequence falls into three periods.

Period I was characterized by pottery, usually associated with the N.B.P. Ware. No sherd of the Painted Grey Ware was obtained from the deposits of the Period. The earliest occupation in this part of the mound seems to have begun by about the fourth century B.C.

Period II was marked by the occurrence of the plain and Red Polished Wares, and may be dated to *circa* first-third century A.D. Among the finds the most outstanding were three clay sealings, bearing legends in Brahmi script of the early centuries of the Christian era and a few terracotta figurines (pi. XXXIV A). Thereafter, the site remained deserted till it was re-occupied in the Late Medieval times.

Period III was characterized by the use of *lakhauri* bricks and Pre-Mughal Glazed ware. To this Period belonged two parallel walls and a revetment on the outer side. The inner wall was made of clay lumps while the outer wall and the revetment were of *lakhauri* bricks. The whole complex seems to have formed part of a Late Medieval fortification (pi. XXXIV B). Another interesting structure of this Period was a *hauz* of *lakhauri* bricks, plastered with lime.

JAMMU AND KASHMIR

24. EXPLORATION IN DISTRICT KASHMIR NORTH.—Sarvashri Sardari Lai, R. K. Pant and Puran Singh of the Frontier Circle of the Survey, during the course of an exploration in the region, located an early historical site near the village Kanishpur.

25. EXCAVATION AT BURZAHOM, DISTRICT KASHMIR NORTH.—The excavation at Burzahom was resumed *{1968-69,* p. 10) under the directon of Shri T. N. Khazanchi, with assistance from Shri Sardari Lai. The digging was mainly confined to the area where the museum-building is to be constructed. The excavation revealed quite a number of dwelling pits, pit-chambers along with associated post-holes, side drains (pi. XXXV B), storage pits and hearths. In some cases, these hearths (pi. XXXVI) were located near the mouth of the pit while in others, they were located on platforms. It is interesting to note that one of the hearths was lined with stone slabs while some others had a raised bunding of mud along their circular periphery.

Among antiquities, noteworthy were a scraper-*cum*-borer, long-sized needles with or without eyelets, double-edged points, all made of bone, and over four hundred carnelian and agate beads and pendants. Twenty-six beads, probably of gold, ascribable to the last phase of Period III were encountered for the first time on this site.

26. EXPLORATION IN DISTRICT KATHUA.—In continuation of the previous work *(1968-69,* p. 9) Shri L.K. Srinivasan of the Frontier Circle of the Survey, assisted by Sarva shri Puran Singh and R. N. Kaw, explored the region around the village Sutah on the right bank of Basantar river and collected Early Stone Age tools, comprising a bifacial handaxe (pi. XXXV A and fig. 6), unifacial choppers, scrappers, discoids and flakes. Quartzite formed the chief rock material of these artifacts excepting one or two tools which were in sandstone.

Among the tools, particularly noteworthy was a bifacial handaxe on quartzite which shows considerable rolling. The working edge and the pointed end of this tool are rounded and it shows a yellowish or creamy patina. In contrast to this, some tools show no signs of rolling, their working edge being sharp and fresh.

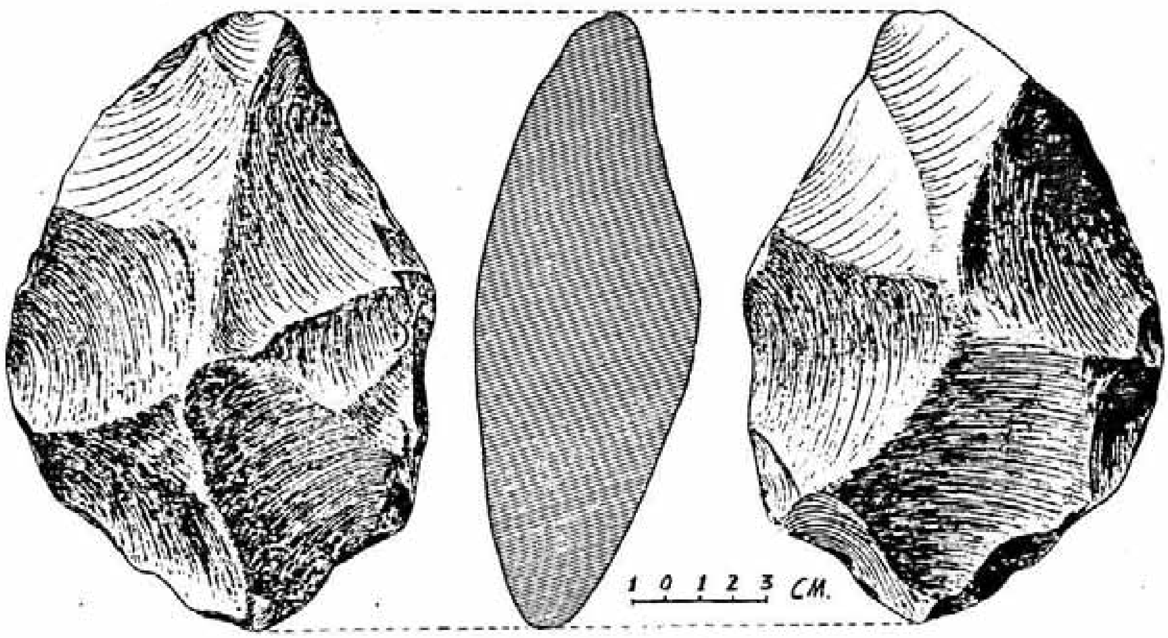


FIG. 6. *Handaxe from Sutah*

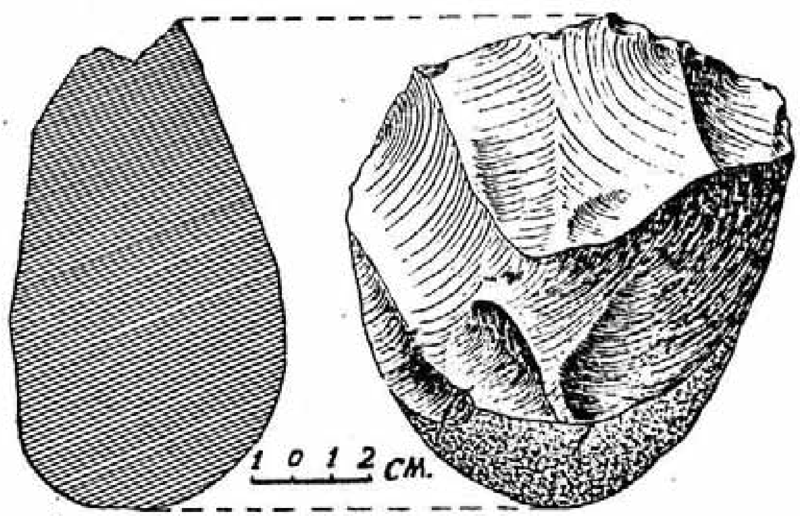


FIG. 7. *Chopper from Kishanpur Nagrota*

Here, the area on the right bank is dissected by numerous streams which join the river Basantar. Exposed sections showed the basal weathered buffish grey sandstone, overlain unconformably by a pebbly conglomerate of varying thickness, the main lithic constituents of which are quartzite and sandstone laid in a calcareous and sandy matrix.

27. EXPLORATION IN DISTRICT UDHAMPUR.—Shri L. K. Srinivasan of the Frontier Circle of the Survey, assisted by Sarvashri Sardari Lai and Puran Singh, undertook the study of the sequence of terraces on the Gambhir Khad (Jammu-Tawi), near the village Kishnapur Nagrota, about 25 km. south of Udhampur, for their morphological

character and possible Stone Age contents. The Tawi river, known at this point as Gambhir Khad, is an important tributary of the Chenab. Rising in the high hills adjacent to the Udhampur basin, it takes a southerly trend up to Kishanpur Nagrota, from where it turns south-eastwards to join Chenab near Nawanshahr.

From the top of the road bridge (on Udhampur—Dhar high way) near the village Kishanpur Nagrota, four Terraces can be traced on the right bank of the river. They are not matched by corresponding levels on the left bank. In fact, the left bank has been cut down vertically by the river to a height of approximately 17 m. from the top to the bed of the river. This cliff section shows the basal sandstone, shales and pinkish clays in alternating layers, overlain by a thick deposit of boulder bed, the lower portion of which is well cemented into dark grey sandstone. This deposit contains mostly quartzite and sandstone boulders of varying size, including small and medium size pebbles. The upper portion of this boulder-bed is somewhat loosely cemented in a matrix of reddish brown sandy soil.

Turning to the right bank, the youngest T_3 of the four Terraces is situated just below the village Kishanpur Nagrota at a height of 5 m. above the river bed. This Terrace lies partly on the boulder-bed and partly on the basal rocks indicating clearly the uncomfor-mable contact. A search on this terrace yielded a few Early Stone Age tools, two of which are noteworthy. One of them is a pebble chopper on roundish quartzite pebble and the other is a scraper on sandstone flake (figs. 7 and 8).

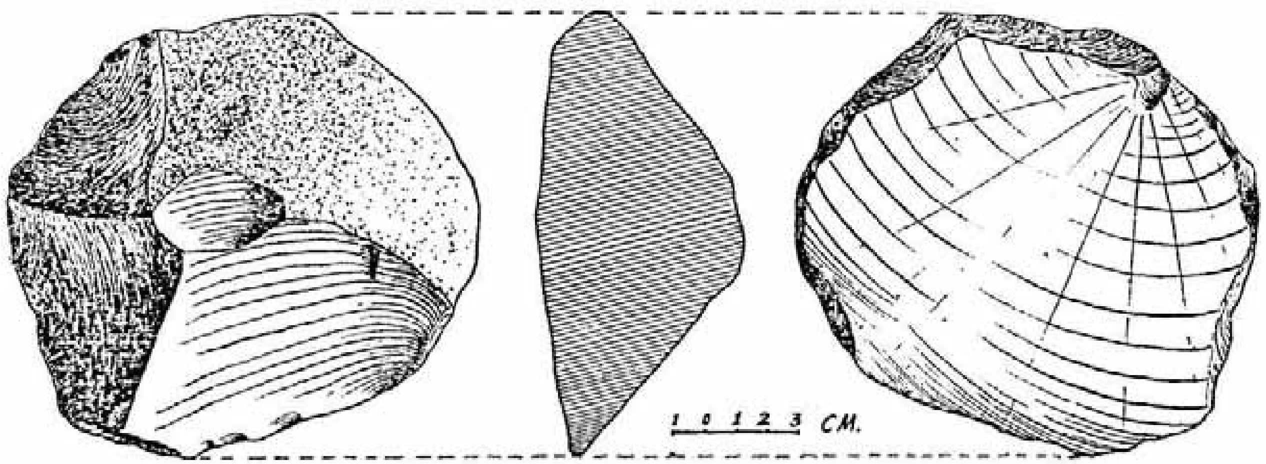


FIG. 8. *Scraper from Kishanpur Nagrota*

The next higher Terrace, T_2 is at a height of approximately 15 m. from the bed of the river. This Terrace is entirely formed of the boulder bed. The village Kishanpur Nagrota lies on the lower slopes of this Terrace. This incidentally is the widest of the Terraces seen here. Lithologically no change was observed in the constituents of this boulder-bed, from what was observed in the youngest Terrace.

The next higher Terrace Ti also formed of the boulder-bed, is at a height of 25 m. from the bed of the river. The modern village Kharta is located on this Terrace.

The topmost or the oldest of the Terraces here is at a height of 60 m. above the bed of the river. This depositional Terrace is composed of large boulders and pebbles of medium to small size. These boulders and pebbles are of sandstone and quartzite which are not geological formations of the area.

The tools which were picked up from the youngest of the terraces seem to have been

transported from the higher terraces, as one of them is considerably rolled. Subsequent exploration in the higher terraces yielded a convex-sided scraper on quartzite from T_2, a bifacil chopper with sharp cutting edge from T_2 and a chopper on a flattish weathered pebble from T_d.

KERALA

28. EXPLORATION IN DISTRICTS CANNANORE AND MALAPPURAM.—The Directorate of Archaeology, Government of Kerala, during the course of an exploration, discovered rock-cut caves at Mananthoddy and Talipparamba in District Cannanore and at Kadungath Desom in District Malappuram.

29. EXPLORATION IN DISTRICTS PALGHAT AND TRICHUR.—During the course of an exploration in the Ponnani valley, between Palghat and Shornur, Sarvashri T. S. Iyengar and Chandrashekhara Menon, Technical Assistants of the Southern Circle of the Survey, noticed what appears to be crude microliths, mostly in quartz or crystal besides chert at Perari, Odanur and Peringothikurussi in District Palghat and at Thozheeppadam and Thindu in District Trichur.

MADHYA PRADESH

30. EXPLORATION IN DISTRICTS DAMOH AND DATIA.—The Department of Ancient Indian History, Culture and Archaeology, University of Sagar, conducted an exploration in Districts Damoh and Datia under the direction of Prof. K. D. Bajpai, assisted by Dr. S. K. Pandey and Shri V. D. Jha.

In District Damoh, a Gupta period temple was located at Kundalpur. This temple is built of red sandstone slabs and has a flat roof. Besides, a number of sculptures were discovered at Bandakpur, Chitrakera, Hindoria and Nala. These sculptures belong to the period of the Chandellas and Kalachuris of Tripuri {*circa* tenth—twelfth century A.D.).

In District Datia, Early Stone Age tools were discovered at Raduapur and Indergarh and rock-shelters at Badoni and Gharava. The latter two sites are within a radius often km. from Datia town.

At Badoni, a site of the early historical period was also located wherefrom typical Gupta pottery and a few pieces of Roman pottery were collected.

About 2 km. to the south of Badoni, remains of three Buddhist *stupas,* each having a radius of about 16 m. were discovered. From these *stupa-sites* a large number of baked clay sealings were obtained. These sealings are of two sizes but bear the same inscription showing a miniature *stupa* in the centre and are ascribable to the sixth-seventh century A.D.

About 10 km. to the north of Datia was also located an ancient site, Keolari, surface exploration of which indicated that the site was inhabited during the Satavahana and the Kushan periods.

31. EXCAVATION AT TUMAIN, DISTRICT GUNA.—The Department of Ancient Indian History, Culture and Archaeology, University of Sagar, under Prof. K. D. Bajpai, assisted by Dr. S. K. Pandey and Shri V. D. Jha, conducted excavation at Tumain (ancient Tumbavana). During the reign of Kumaragupta I of the Imperial Gupta dynasty,

Tumbavana was the seat of a Governor for looking after the region of north-eastern Malwa. Surface finds from the site included pre-Gupta remains, Gupta inscriptions and some rare stone sculptures ranging between the fifth and tenth centuries A.D.

Two trenches, TMN-1 and TMN-2, were laid out on two different mounds, locally known respectively as Talin-ka-Khera and Garhi. The excavation revealed a sequence of four cultural periods:

Period I {*circa* fifth—second century B.C.) was characterized by the occurrence of the N.B.P., black-and-red, white-slipped and plain red wares. Two structural phases were encountered. The houses were made of baked bricks and stones.

Among the noteworthy finds mention may be made of: beads of semi-precious stones and terracotta; finger-rings in copper and shell; terracotta ear-studs; copper antimony rods; soap-stone miniature pots, including a decorated lid bearing *srivatsa* and lotus symbols; stone sling balls; iron javelin tips, nails and arrow-heads; bone points; copper punch-marked coins; and terracotta gamesmen.

Period II {*circa* second century B.C.—first century A.D.) was distinguished by the presence of mica-mixed ware. The frequency of the N.B.P. and the black-and-red wares was reduced. Three red ware sherds were found to be painted with black horizontal and vertical bands. Of the structural remains of this period, mention may be made of houses of baked brick and rammed floors of brickbats, potsherds and gravel, etc. At TMN-2 two ring-wells were also exposed.

The other finds included: punch-marked coins and three inscribed tribal copper coins bearing early Brahmi script; beads of terracotta, stone and glass; shell bangles; flesh rubbers; ear-studs; clay cart-wheels; miniature soapstone pots; nails, arrow-heads and spear-heads of iron; crude terracotta male figure and a circular dice made of shell.

Period III {*circa* first—fifth century A.D.) was marked by the occurrence of the Red Polished Ware and stamped pottery. The plain red, red-slipped and black-slipped wares formed the associated ceramics.

The other finds of the Period included: small copper bells; beads of terracotta, stone and glass; bangles of shell, copper and glass; ear-studs of quartz and terracotta; objects of iron like hooks, nails, knives and sickles and two mutilated stone sculptures.

Period IV {*circa* sixth—twelfth century A.D.) was distinguished by the occurrence of black slipped and mica dusted wares. Bowls, small lamps, vases and cups were commonly used during the period. Houses were made of baked bricks.

The other finds of the period included: iron nails, arrow-heads and spear-heads; beads, stopper and gamesmen of terracotta; bangles in shell, glass and copper; stone pestles and querns and two small stone statues of Ganesa.

A significant discovery at Tumain was that of three Buddhist *stupas* which seem to have been originally constructed during the Mauryan period on the main route between Mathura and Vidisha, passing through Tumbavana. One of these *stupas,* about 12 m. in height and 63 m. in circumference, was partly cleared. The excavation revealed that part of the outer surface of the *stupa* was covered with Mauryan bricks. A broken stone railing pillar, with usual socket-holes, was also recovered.

32. EXPLORATION IN DISTRICT GWALIOR.—Under the general supervision of Dr. K. P. Nautiyal, Shri D. L. Rajput, Curator, Scindia Museum, explored Gwalior and its outer periphery for locating earlier settlements. During the course of the exploration, Shri Suryakant Srivastava, Research Scholar, also joined the party. The exploration brought to light more than twenty-five sites, yielding the black-and-red and the N.B.P.

Wares, within 15 km. to the north-east of Gwalior. Noteworthy among these are Chandu-pura, Dhaneli, Jaderua, Person and Sooron.

At Dhaneli, besides the N.B.P. Ware, a large number of microliths, all of non-geometrical type, were also discovered from the slopes of a large hillock adjacent to the main mound.

33. EXCAVATION AT JADERUA DISTRICT GWALIOR.—The School of studies in Ancient Indian History, Culture and Archaeology of the Jiwaji University, Gwalior, conducted excavation at Jaderua, in collaboration with the Archaeological Survey of India, New Delhi. The work, taken up under the general guidance of Prof. B. B. Lai, was jointly directed by Dr. K. P. Nautiyal of the University of Gwalior and Sri Lakshmi Datt of the Survey, with assistance from Sarvashri R. K. Seghal, Photographer, Archaeological Survey of India and Suryakant and D. L. Rajput, Research Scholars of the department.

The purpose of this excavation was two fold: (a) to impart field training to M. A. students; and (b) to ascertain the early history of Gwalior.

Measuring about 12-949 sq. km. and three metres in height, the mound is built over by the modern village, and only its western slopes, now under cultivation, are available for exploration. The excavation established the following cultural sequence, from bottom upwards.

Period I *(circa* sixth—fifth century B. c.): The earliest settlement is characterized by the use of a distinctive pottery which is black inside and black-and-red outside; the dominant types being dishes and bowls. Along with this pottery was found a grey ware, a few of the sherds recalling the fabric of the well-known Painted Grey Ware. Due to the limited area excavated in these lower levels, no house-plans were obtained nor even many antiquities unearthed. However, mention may be made of a polished sandstone muller, a saddle-quern and a few beads of terracotta and crystal.

Period IIA *(circa* mid-fourth—second century B.C.): After a very brief gap of time, the site was occupied once again. While the black-and-red ware ceased, a new kind of pottery, black in colour and highly shining (known to archaeologists as the Northern Black Polished Ware)—made its appearance. With it was associated a red ware in which notable shapes included the rimless *handi,* miniature bowls and *lota*-shaped jars—all similar to those found in the corresponding levels at Hastinapura, Ropar, Ahichachhatra, etc.

Among the antiquities, iron implements, comprising chisels, spear-heads, arrow-heads, and a large sickle are noteworthy. The presence of a large quantity of iron slags suggests extensive iron-smelting and on-the-spot manufacture of the iron implements. A number of beads in terracotta, agate and carnelian were also discovered in this cultural horizon.

Of interest is the discovery of a 16-metre long wall, running from north-east to south-west and having post-holes at intervals of about 2 metres. In addition, a room has been exposed, with a drain passing through one of its walls. The construction of the walls follows the header-and-stretcher style, the bricks measuring 45 x 22-5 x 7-5 cm. The foundations of the walls were filled up with stone rubbles mixed with iron slags. The find of tiles indicates the kind of roofing for the houses.

Period IIB *(circa* first century B. c.—second century A. D.) : This sub-period yielded rich finds in the form of coins and terracottas. In the lower levels were found square copper coins, bearing tree-in-railing and crescent-on-hill symbols, which are ascribable to the period between first century B. C. and first century A.D. From a very late pit came the Naga coins belonging to *circa* second century A.D. The terracottas included two female

figurines in the typrical 'Sunga' style, one of which may be identified as that of *padma-hasta* Lakshmi.

Period III {*circa* ninth—tenth century A.D.) : After Period IIB, the site was abandoned, only to be re-occupied about the 9th century A.D. The characteristic pottery types are the knife-edged bowl, spouted vessel and carinated *handi.* During this period the structures seem to have been primarily of stone-rubble.

The modern village: The discovery of a late Mughal coin from the surface suggests that the modern village came into existence in the early 19th century.

34. EXPLORATION IN DISTRICT RAISEN.—Under the U.G.C. Research Promotion Scheme, the Department of Ancient Indian History, Culture and Archaeology, University of Sagar, working under the direction of Prof. K. D. Bajpai took up field-work at Barkhera and Kharwai in the District. The objective of this investigation was to discover and classify the rock-paintings of the region. One trench each at Barkhera and Kharwai was also taken up to determine the cultural sequence. Exploration in the Barkhera area revealed over one hundred and fifty rock-shelters grouped as follows: (i) Vinayaka, (ii) Bhimbetaka, (iii) Pandapur and (iv) Lakhajuar. It may be recalled that most of these rock-shelters had been discovered earlier by Shri V. S. Wakankar of the Vikram University.

In the Kharwai area, as many as fifty-five painted rock-shelters were located. Besides, a Buddhist *stupa* was also located in the area. The stone walls of the *stupa* were found to be still intact.

35. EXCAVATION AT BHIMBETKA, DISTRICT RAISEN.—The Vikram University under Shri V. S. Wakankar, assisted by Dr. S. K. Arya, Sarvashri N. Vyas and J. C. Joshi and Ku. D. K. Gill, undertook an excavation of the rock-shelters at Bhimbetka, situated 42 km. south of Bhopal. The objectives of this season's work were: (a) to make a complete survey of all the rock-shelters in the region; and (b) to ascertain the cultural sequence in some of them.

To realize the first objective the whole region was divided in the following areas: (i) from Karitalai to Vinayaka; (ii) from Vinayaka to Jamun Jhiri Camp site; (iii) from Camp site to Badi Jamun Jhiri; (iv) Lakhajuar East; (v) Lakhajuar West; (vi) three steep river valleys east of Renhati road; and (vii) the hill with Munibaba-ki-Khoh or Pir-ka-Balda. The shelters, of which over six hundred were located in all the seven areas, were found to be situated on the northern range of the main Vindhyan system running in east-west direction. In each area, these were found clustered around a low lying hill or huge denuded boulders. To fullfil the second objective three rock-shelters were subjected to excavation.

The excavation revealed that these rock-shelters were first occupied during the Early Stone Age and continued with breaks up to late medieval times. The lowest levels yielded choppers of various sizes made on natural pebbles.

This implementiferous deposit was overlain by a sterile layer of fine reddish earth which in turn was covered by another deposit yielding abundant Acheulian tools. Within this deposit were also noticed two working floors, the lower one yielding more handaxes than cleavers and the upper one more cleavers. The industry in both the levels, however, seems to be an evolved Acheulian.

The overlying deposit which was composed of smaller stone chips and was ochreous in appearance yielded several tools of the Middle Stone Age. A noteworthy feature of these tools was their rolled and stained condition.

From the next deposit were obtained tools of the Late Stone Age, consisting of lunates, triangles, trapezes and points. It was during this period that the shelters began to be painted with scenes of daily life.

The succeeding period of occupation was chalcolithic in cultural content and was marked by the use of microliths including long flakes and blade, copper objects, painted pottery which possibly was inspired through contacts with Malwa.

The general conditions of life of the people remained the same. However, there was a marked change in the painting style.

The shelters also remained under occupation during the early historical period, as attested by the find of pottery and objects of iron. During this period, the subject matter of the painting also underwent change. The paintings depicted *yaksha* figures, horses, horse-riders, etc.

36. EXPLORATION IN DISTRICT UJJAIN.—Shri V. K. Tiwari of the Central Circle of the Survey discovered: Middle Stone Age sites at Kothari, Limbwas, Mahu, Narela Buzurg, Ardi, Sikandarkhera, and Singaoda; chalcolithic sites at Amlawad Bika, Amlawad Kalan, Alot, Baniakheri, Khera Narayan, Banjari, Bhawasa, Jharda, Khachrod, Khamaria, Parliakalan and Rajgarh; early historical sties yielding black-and-red ware at Banger, Baleri, Banaoda, Bhat-Pachalana, Birakheri, Birgoda-Randir, Chirola, Datarwa, Kararia, Kharotia, Lahana, Likhoda, Limoda, Kharsod Khurd, Piplai Panth, Sanaoda, Singaoda, and Tokra, in Tahsil Barnagar; Chirola and Runkhera in Tahsil Khachrod; Bavalia, Chitawad, Delchi Buzurg, Delchi Khurd, Dhulet, Jorma Lakha, Kantharia, and Parlia Khurd in Tahsil Mahdipur; Bhaijukheri, Birgoda, Kaytha and Shamnera in Tehsil Tarana and Makoriam in Tehsil Ujjain; historical sites at Baranagar, Bhondwas, Dhureri, Dunalja, Harnaoda, Itawa, Kajailana, Khandoda, Palsoda, Pachilana Bil, Paiwa, Simlauda, Jahangirpura, Sarsana in Tehsil Barnagar; Banbana, Berawan, Jalodia, Makla, Metwas, Nividia Khurd, Rupeta and Unhel in Tehsil Khachrod; and Parmara Remains and Temples at Banya Kheri, Bhat Pachlana, Chirola Dangwara, Kanthar Kheri, Kharotia, Kharsodkalan, Ordi and Panchlana Bil in Tahsil Barnagar; Baijnath, Indokh, and Jharda in Tahsil Mahdipur; Amodia, Barwai, Jamalpur, Karochan, Tajkheri; and Tumraoda in Tahsil Ujjain.

37. EXCAVATION AT VIDISHA.—During a clearance work at the Vijaya Mandal Mosque Shri A. P. Sagar of the Central Circle of the Survey brought to light approximately 2 m. high *adhisthana* with seven steps (pi. XXXVII A) on the southern side. During the operation, a number of architectural members including fragmentary sculptures and inscribed pieces were found. Among the sculptures, the most noteworthy was the standing eight-handed Ganesa (pi. XXXVII B) belonging to the twelfth century A.D.

MAHARASHTRA

38. EXPLORATION IN DISTRICTS BIR AND OSMANABAD.—Shri B. P. Bopardikar of the Prehistory Branch of the Survey examined fossil-bearing site at Ganjapur (Ganjpur), a village on the right bank of the Manjra, a tributary of the Godavari. The site had earlier been discovered by Shri S. W. Chitale of the Arts and Commerce College, Ambejogai. Two more fossil-bearing deposits were found in the loose gravel at Deola and Sirsa. Middle and Late Stone Age tools were collected at Tadul, Deola and Kallam.

Ganjpur is situated to the south-east of the village, slightly away from the main river. The geological formation in this area is the Deccan Trap, the outcrops of which were seen near the village as well as in the river bed. A few microliths, cores and flakes were collected on the surface. The deposit occurring to the south-east of the village seems to have been made by the ancient course of the present river and has now been dissected by the rain gullies. The present river has shifted considerably from its original position. The exposed cliff section in the gullies of the ancient channel showed 70—80 cm. gravel with sandy ledges, overlain by black soil mixed with *kankar* (redeposited soil?). Considerable number of fossils were extracted from the contact zone of black clay and gravel. The black soil was found to be full of shells. The sandy gravel contained molluscan shells of univalves and bivalves. Unfortunately, no artifacts could be found. The collection of fossil fragments (pi. XXXVIII A and B) on rapid scrutiny, showed the presence of animals like elephants, *Bos,* etc. From these fossils the deposit appears to belong to the Pleistocene Period, the exact stage, however, remaining as yet undetermined.

Wagdari is on the left bank of the Manjra river. To the south-west of the village, at a slightly higher level, a compact and hard gravel was found resting on the bed-rock, from which one fossil was removed. It seems that this is a patch of the same old gravel found at Ganjapur.

Tadul is situated about 5 km. to the west of Wagdari. The river bank between Wagdari and Tadul shows a cliff section on the left bank. It is composed of (from bottom upwards) sandy gravel with ledges, overlain by black soil of about 2 m. thickness. The gravel contained similar types of fossils (pi. XXXVIII G) as obtained from Ganjapur. The thick black soil yielded innumerable shells. No tools, however, were found in the gravel associated with fossils, but from the loose gravel in the river, Middle and Late Stone Age tools on chalcedony were collected. The tool-types comprised scrapers, cores, flakes and blades.

Deola is about 26 km. to the south-south-west of Ambejogai and is located on the left bank of the Manjra river. A rapid survey in the upstream region of the Manjra yielded a few Middle and Late Stone Age tools made on chalcedony. The shapes included scrapers, points, flakes, blade-cores and other cores. A low cliff section near the village showed the following sequence (from bottom upwards) bed-rock, sandy gravel, brown silt and black soil. A number of fossils of animal-remains in a highly rolled condition were found from the loose gravel. The presence of rolled fossils in the upstream region above Ganjapur and Tadul indicates the existence of fossiliferous horizons upstream.

Kallam is a Taluk place in District Osmanabad and lies about 56 km. to the southwest of Ambejogai on the Manjra river. The trap rock is visible in the vicinity of the village as well as in the down-stream region near the bridge. A 7-m. high cliff section down-stream showed the following sequence of deposits (from bottom upwards): bed-rock; sandy gravel with ledges and alternate bands of coarse and fine sand; silt; and black soil. From the loose gravel in the river-bed a few scrapers, blades, flakes and cores were collected, besides a stray fossilised tooth of an animal.

39. EXPLORATION IN DISTRICT JALGAON.—Shri S. A. Sali of the Deccan College Post-graduate and Research Institute, Pune, undertook explorations in about 9 sq. km. area around the village Patna under the guidance of Prof. H. D. Sankalia and brought to light evidence of stratigraphic succession of lithic industries from the Middle Stone Age to the Late Stone Age through the Upper Palaeolithic as shown in the following table (from top downwards).

Description of Deposit	*Associated Industries*
Black brown soil	Microliths on the surface and a few in the soil.
Fine gravel	Late Stone Age tools.
Brownish grey calcareous silt, resembling a loessic deposit	Occasional Late Stone Age tools.
(—) UNCONFORMITY	
Fossil soil-like black clayey deposit	No tools.
Sandy pebbly gravel	Late Stone Age tools
EROSION	
Yellow calcareous silt	Upper Palaeolithic tools
At places local unconformity and at places sandy fine gravel	Upper Palaeolithic tools
Brown silty clay with fissures	Upper Palaeolithic tools along with some Middle Stone Age tools.
(—) UNCONFORMITY	
Yellowish calcareous pink silt	No tools.

40. EXCAVATION AT MAHURJHARI, DISTRICT NAGPUR.—In continuation of the last year's work *{1970-71,* pp. 24-25) the Department of Ancient Indian History, Culture and Archaeology of the University of Nagpur under Prof. S. B. Deo carried out further excavation of the megalithic stone-circles at Mahurjhari.

Eight stone circles in Locality III, close to the north of the lake, and one in Locality IV, about 2 km. due west of locality III, were fully excavated this season. The diameters of the stone-circles ranged between 16-6 and 8m., the average diameter, however, being 13-14 m. The filling in all these circles was to the extent of about 1-3 m. and consisted mainly of black sticky clay capped by pebbles. At least one stone of each circle was found to have 'cup-marks' in the form of a double row of shallow circles numbering between 32 and 67.

The pottery (fig. 9) encountered in the filling comprised four wares: (i) black-painted red; (ii) micaceous red; (iii) black-and-red; and (iv) black burnished. Among these, the first category was the minimum in quantity, had matt surface, gritty core, and bore painted designs formed by parallel or wavy lines or dots. The black burnished ware, which was by far the largest in bulk, yielded, besides rimless bowls, globular pots with flat base, and covers or lids of various sizes and shapes. A noteworthy lid-type showed a domical base, grooved neck and a finial, bearing the motif of a goat.(pi. XLB) or of four birds shown face to face. It may be recalled that the latter type of lid in copper was also found in the last season's excavation. The black burnished and the analogous black-and-red ware had several sherds with graffiti marks, comprising mostly group of lines or arrow-heads. The micaceous red ware had a brittle, ill-baked fabric and was represented in two shapes: globular pots with flared mouth and doughs. A few of these were found to bear faint paintings in black, mostly in the form of group of vertical lines.

The objects of iron (pi. XXXIX B) which were found either in the filling or kept right on the natural *murum* comprised lamps or ladles with a long handle; nail-parer-cum-tooth-picks, chisels with long bars and pointed tang and adzes; horse-bits (pi. XL A), hoes and weapons of offence like a dagger, spear-head and long javelins. The handle of the dagger was covered with wood rivetted by iron pins.

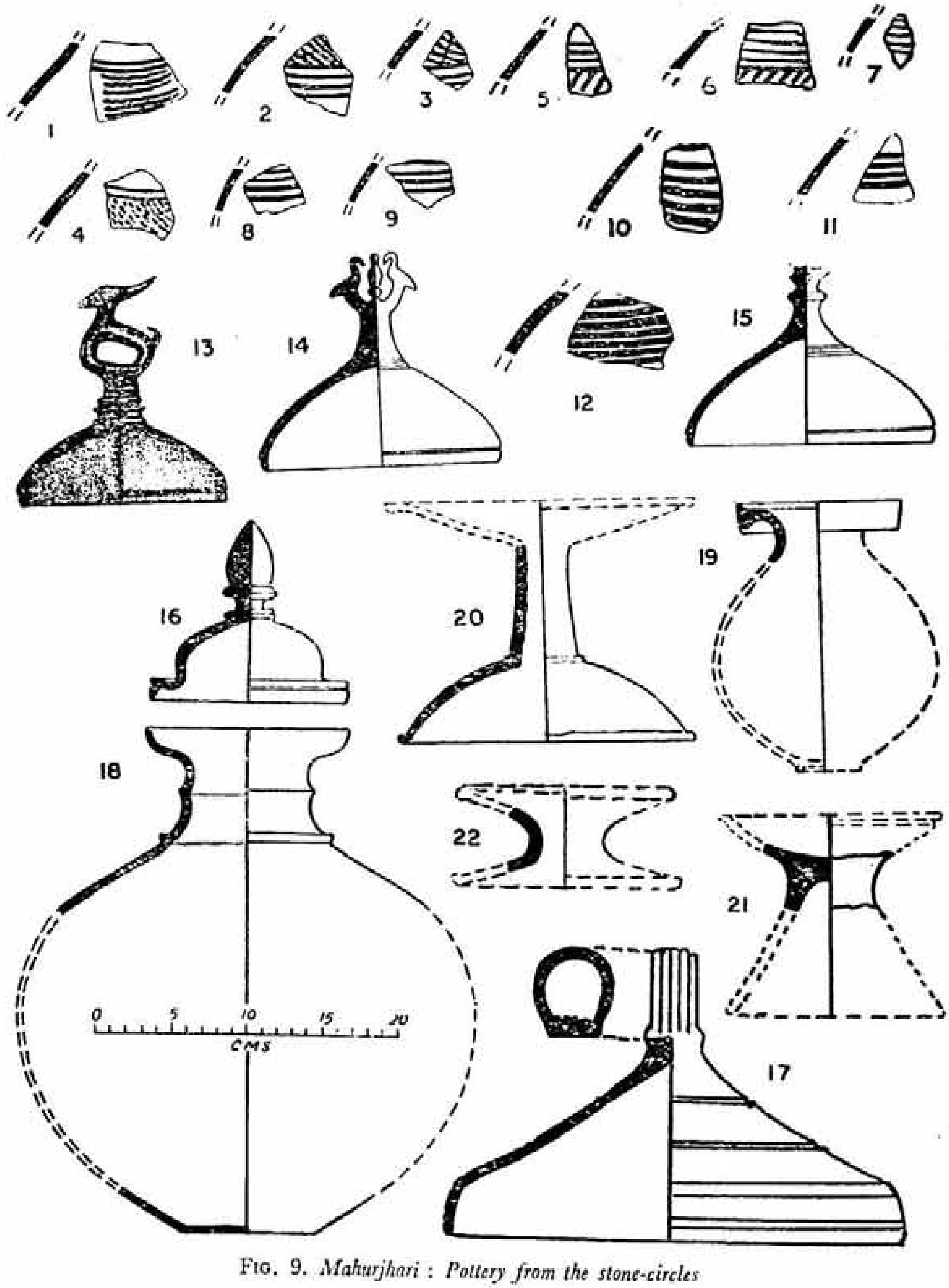


FIG. 9. *Mahurjhari : Pottery from the stone-circles*

The objects of copper comprised bangles with incised decoration and ornaments made out of thin copper sheets for the horse (pi. XL A). A few necklaces and ear-ornaments of gold were also found. However, the most remarkable find was a dagger with an iron blade and copper handle (pi. XXXIX C). This was found to have been kept over the waist portion of a male human skeleton in Meg. V.

In the burials, human skeletons, either single or double, were found. One of the individual skeletons, recovered, in Megalith VI, was found to have been placed at the bottom of the pit in the east-west direction with the head towards the east and in a supine condition. Over its waist was found a dagger with the copper hilt and iron blade. Two circular ear-rings of gold were also recovered. Another individual skeleton (1*57 m.), oriented in the north-east—south-west direction with the head towards the north-east was found in Megalith V. A number of iron objects and copper ornaments of a horse were also found alongside the skeleton.

In Megalith VI, skeletons of a male and a female (pi. XXXIX A) oriented in the east-west direction, with the heads to the east were found close to each other.

In Megalith VIII, on the other hand, were found two skeletons placed one above the other. The orientation was similar to that obtaining in Meg. VI. Associated with these skeletons were iron and copper objects.

41. EXCAVATION AT SASTEVADI, DISTICT PUNE.—Shri S. R. Rao of the South-western Circle of the Survey, assisted by Shri P. Narayan Babu, undertook trial excavation at Sastevadi, situated on the northern bank of the river Mula-Mutha opposite Theur. The earlier excavation at Theur had brought to light an occupation of the Jorwe-Rangpur IIC-III culture-complex noted for the predominance of the black-and-red ware and marked by the use of mud houses enclosed by stone-circles. The main objective of the present excavation at Sastevadi was to ascertain whether it could be considered as a meeting place of the southward-marching chalcolithic folk of Jorwe and the northward-moving neolithic people of the Krishna valley. The excavation revealed that the two cultures met on the banks of the Mula-Mutha.

The trial trench, sunk on the western slopes of the mound, showed an occupation belonging to three cultural periods. Of these, the earliest (Period I), represented by layers 17 to 20 yielded burnished grey ware of neolithic affinity along with the painted pottery of Malwa fabric. Besides, a fragment of a polished stone axe and a quern were also found in the deposits of this Period. The abundance of the handmade burnished grey ware and the comparative rarity of the chalcolithic pottery suggests a pure neolithic occupation in the earliest period. The succeeding occupation (Period II), represented by layers 10 to 16 was known for the presence of painted pottery of the Jorwe fabric. The latest occupation (Period III) represented by layers 1 to 9 belonged to the Muslim-Maratha period.

The following structural activities have come to notice at Sastevadi.

Trench I, Period I	Rammed mud-floor of a house laid on layer 22.
,, Period II	Rammed mud-floor with post-holes.
,, Period III	Rubble walls.
Trench II, Period I	Circular house floors.

An interesting feature of the occupation of Period I was the construction of circular houses of wattle and daub. The houses were found to be built in a row, suggestive of some sort of planning; the animal bones were found scattered around the houses. The inhabitants of Period II used parallel-sided blades of chalcedony and copper fish-hook.

42. EXPLORATION IN DISTRICT RATNAGIRI.—Dr. S. N. Rajaguru and Miss Statira Guzder of the Deccan College, Post-graduate and Research Institute, Pune, studied laterite plains, coastal dunes and beach rocks near Ratnagiri and Malvan. A detailed survey of the Early Stone Age sites around Malvan was also conducted by Miss Guzder. These field studies indicate the existence of fairly rich factory sites of Early Stone Age man around Malvan. The tool assemblage is predominated by flakes, cores and chips. There are only a few handaxes and scrapers in a total collection of about 250 artifacts. The majority of the tools, however, are made on quartzite or quartizitic sandstone and give a fresh look.

The coastal laterites are either primary or secondary in origin. The latter types are fairly thick (sometimes more than 50 m.). The occurrence of carbonaceous shale, rich in plant fossils, below 8 m. thick laterite at Nandivde near Jaygad indicates that the process of lateritization continued even in late Tertiary times. The planation surfaces, observed at levels of 350, 325, 150, 50 and 20 m. above Mean Seal Level, seem to have originated due to the processes of tropical weathering and stripping as also to the changes in base level of erosion. The occurrence of 20-m. thick lateritic gravel-bed of fluvial origin at an elevation of about 30 m. above Mean Sea Level, right near the coast, establishes changes in base level during the Canozoic. The mid-Holocene beach rock, supposed to represent mid-Holocene rise in sea level by about 2 or 3 m. above Mean Sea level does not appear to have been formed only due to such changes in sea level but is also a product of constantly changing relationship between land, sea, the drainge morphology near the mouths of many creeks and the rate of sediment supply in the coastal region.

43. EXPLORATION IN DISTRICT SANGLI.—Dr. S. N. Rajaguru of the Deccan College Post-graduate and Research Institute, Pune explored the Varna and Krishna valleys in the District and discovered Middle Stone Age tools in a stratified pebble conglomerate, exposed almost at the bed-level on the left bank near Samdholi village. The older alluvium is poorly preserved in this region. It has been partially or completely replaced by recent alluvium.

A few pieces of long bones of *Bos indicus* and carbonized pieces of *accasia sp.* were collected from a pebble conglomerate, exposed 3 m. below the present bed-level of the Krishna near Takari village. The carbonized wood has been dated to about 3800 years B.P. by C-14 method.

The geomorphological features, such as erosional surfaces at 1,000, 800 and 650 m. above Mean Sea Level in the valley cross-section of the Varna in its source-region and the present rejuvenation of both Krishna and Varna suggest major changes in base level of erosion during whole of the Canozoic.

MEGHALYA

44. EXPLORATION IN DISTRICT GARO HILLS.—A party, consisting of Prof. M. C. Goswami, Shri H. C. Sharma and a batch of students of the Department of Anthropology, University of Gauhati, explored the central part of the Garo Hills. In the course of the exploration, a new site was located at Chibragiri on the right bank of the river Rongram. The site yielded Early Stone Age tools embeded in the coarse gravel. The gravel layer, which yielded handaxes, cleavers, choppers and chopping tools, was so badly eroded that the section containing the tools could not be adequately studied. This site, however, did not yield Middle Stone Age tools and the concomitant phenomenon of fine gravels. It is interesting to note that the river-sections at Rongram and Rombhagiri did not likewise

show signs of Gravel II and III. The general stratigraphic of the river is represented (from bottom upwards) by: bed-rock covered by an implementiferous coarse gravel; and reddish-brown silt layer. Middle and Late Stone Age tools were also collected in the course of the explorations in the area, but these unfortunately could not be found *in situ.* Most of these were surface collections except at Thebrongiri where the stratigraphy is yet to be established. In all, about 1200 tools of various categories were collected.

Under the auspices of the Department of Anthropology, University of Calcutta, Dr. Asok K. Ghosh and Mrs. Tundra Basu, Research Fellow in the Department, carried out an exploration in different parts of Meghalaya.

During the course of the exploration, isolated ground and polished stone celts were collected from the Rongram valley, near Rongram. These surface finds were discovered on the flat-topped hill. From field observations it appears that these tools might have been turned up by the *jhooming* operation.

In the course of further exploration in the same region a site was located in the vicinity of Thebrongiri. The section exposed by the road cutting reveals (from bottom upwards): bed-rock; residual soil dark red in colour; and greyish soil. One of such lenses yielded large number of chipped celts, hammerstones, blanks, debitage, etc. It appears that this was a factory site where suitable rock fragments were collected and knapped for making took. It is presumed that the chipped celts were finally ground on the stone boulders lying near the stream.

45. EXPLORATION IN DISTRICT SHILLONG.—During an exploratory work carried out by Dr. Asok K. Ghosh and Mrs. Tundra Basu of the Department of Anthropology, Univer sity of Calcutta, a large number of megaliths, specially menhirs, were found in surroundings of Shillong and Cherrapunji. In the former area, large stone slabs were erected, either solitary or in group. Some of these are accompanied by similar stone-slabs placed on the ground. In Cherrapunji, besides the above type, both large and small stone-boxes are found in profuse number. It is very difficult to ascertain the date of these structures since the local Khasi (non-Christian) people still practise more or less similar custom.

MYSORE

46. EXPLORATION IN DISTRICTS BELGIUM AND BIJAPUR.—Dr. R. S. Papua of the Deccan College Post-graduate and Research Institute, Pune, explored some portions of the Ghataprabha river in the Mudhol, Silgi and Bagalkot Taluks and located: (i) Early Stone Age sites at Katarki and Metgud; (ii) Middle Stone Age sites at Bhantanur, Bijkuppi, Chinchkhandi, Halki, Katarki, Khajjidoni, Laksanhatti, Machakanur and Varachgal; and (iii) a site with distinct blade element at Yadawad.

The tool types of the Early Stone Age industry consist of choppers, scrapers, handaxes and cleavers. The tools which were made on quartzite show superior workmanship.

The Middle Stone Age industry, showing somewhat widespread distribution, is represented by tool-types like scrapers, borers, and points. The raw material used in preparing these tools is chert which is available in this area in abundance, especially in the limestone region. Many of the sites appear to be factory sites, as these are situated far away from the main river channel (about 1*5 to 4 km.) and lie in the vicinity of the cherty outcrops. Besides, the assemblage shows dominance of unifinished tools and waste products.

The assemblage from the site of Yadawad is characterized by the presence of

blade-tool element. It represents a separate industry posterior to the typical Middle Stone Age industry.

47. EXCAVATION AT VADGAON-MADHAVAPUR, DISTRICT BELGAUM.—Dr. M. S. Nagaraja Rao of the Kannada Research Institute, and Dr. A. Sundara of the Department of Ancient Indian History, University of Karnatak, conducted a small-scale excavation at Vadgaon-Madhavapur, a suburb of Belgaum.

The site was noticed by the Kannada Research Institute in 1945, when a *yupa* inscription, ascribable on palaeographical grounds to the first century A.D., was discovered at the site. The record, in Prakrit, registers the fact that a brahmin of *Kasyapagotra* performed two vedic sacrifices known as *Vajapeya* and *Agnistoma.* During 1964-65, Dr. Sundara revisited the site and collected a couple of lead coins belonging to Satavahana rulers. He also observed a number of brick walls exposed in the sections of the mound.

The site covers an area of about 24-28 to 28-33 hectares and shows an occupational deposit of about 9 m. During this field-season, two areas were tapped, besides exposing a brick well.

In site I, which was located to the south-eastern part of the mounds, a large trench, measuring 20x16 m. was excavated. Here, large rectangular structures (pi. XLI), consisting of a large hall with two landings, and a small room on the western end, having an entrance at the north-west corner, were exposed. Both the structures had brick-paved floors. The walls had an average thickness of about 80 cm. and were made of baked bricks (size: 34x37x10 cm.) On the southern end, this structure rested on a large wall of an earlier phase. Two structural phases could thus be distinguished. At the north-eastern corner of of the lower floor was found a square well lined with bricks, (size: 24x24x7*8 cm.) which was excavated to a depth of 3 m., beyond which it was not possible to dig because of the narrowing area. Another interesting structure associated with this hall was a water cistern, located on the southern landing of the floor. The eastern, western and the northern walls of this cistern were made of large bricks (size: 44 x 27 x 10 cm.)

Inside the small room, slightly towards the south was a storage bin, with brick-lining on all the four sides, going to a depth of 3 m. From the debris of this storage bin, considerable quantity of animal bones was recovered, besides pottery typical of the early historical period.

Although the precise nature of the building still remains to be established, from the sparseness of pottery, it is surmised that it may not be a residential building.

Other noteworthy finds obtained from the building included: (i) a number of lead coins of the Satavahana period, probably belonging to a local branch, such as the *Kurds;* (ii) a large number of terracotta human figurines; and (iii) beads of carnelian and lapis lazuli.

In Site II, excavation was undertaken at a place where the upper part of a brick structure already stood exposed by brick robbers. After careful clearance, the structure was found to consist of two square rooms (about 3-m. square) with a projection on the east. A circular well constructed of wedge-shaped bricks was also exposed on the south-western corner of the building.

This season's work has indicated that the site remained in occupation from about fourth-fifth century B.C. to about third century A.D.

The earliest deposits yielded highly burnished black-and-red ware, similar to the megalithic black-and-red ware. No coins or other antiquities are associated with this phase. The next phase was characterized by the occurrence of punch-marked coins. The last phase

which may be called early Satavahana, as distinguished by the use of lead coins, probably of a local dynasty, and typical pottery of the period.

48. EXPLORATION IN DISTRICT KOLAR.—Shri G. Krishnamurthi of the Southern Circle of the Survey, during his exploration in the District, noticed: (i) a neolithic habitation site in Budikote; (ii) a megalithic habitation site at Ramasagara; and (iii) a number of megaliths at Abbihalli, Allikunta, Bandur, Biligirahalli, Chikkakuntur Doddakadatur. Doddakallahalli, Hanumanthapura, Hosalli, Kadiramahalli, Kilkambi, Mallappahalli, Nachanthapalli, Parandahalli, Puramakanahalli, Srikantapura, Udapanahalli, and Upparahalli.

49. EXCAVATION AT NAGAR, DISTRICT SHIMOGA.—The Southern Circle of the Survey, under Shri K. V. Soundara Rajan, assisted by Shri T. S. Iyengar, undertook the excavation at Nagar. As a result thereof, the complete outlay of the palace of Sivappa Nayaka of Keladi (A.D. 1645-1660—fig. 10) was traced. The palace is reputed to have existed under the Keladi Nayaks until 1763 when it was stormed by Haider Ali and was set fire to by the Queen to save herself and the wealth.

The palace covers an area of 34-75x20-75 m. and is built over a bluff in the centre of the Fort. It has two courtyards of equal dimensions in the north and south, separated by a row of three rooms in the centre (pi. XLII). Among these rooms, the central one is larger, measuring 7 x 5-12 m. in area, while the side rooms are 4-5 x 5-12 m. in area and have openings to each court. The roof of the courts appears to have been supported by wooden pillars, each at an interval 4 m. from pillar to pillar. The north-east and south-west corner rooms are provided with staircases which gave access to the terrace or the first floor above.

The extant hall, which is built in laterite stone, is not more than 2 m. in height at present. These were thickly plastered, and beautiful niches across the wall filled the blank.

The front of the northern courtyard, which was probably meant for the audience, was provided with a paved pathway of about 2-m. width in a slow gradient from the gateway in the north. The palace could also be reached by stone steps provided in the western side.

PUNJAB

50. EXCAVATION AT SANGHOL, DISTRICT LUDHIANA.—In continuation of the previous season's work *{1970-71,* pp. 30-31), the Department of Archaeology and Museums, Govern ment of Punjab, resumed excavation at Sanghol. The work was conducted under the direction of Shri S. S. Talwar, assisted by Shri R. S. Bisht. During this season, excavation was confined to the apsidal mound, called SGL-5, which spreads over an area of 120x 100 m. and rises to a height of 2 m. from the surrounding plain.

The excavation revealed a *dharma-chakra* pattern plan of a Buddhist *stupa* (pi. XLIII) along with an enclosure and a number of other structures. The spokes of the wheel are represented by brick walls radiating from the central column or hub of the structure. These radial walls are intersected by three successive circular walls. The peripheral circular wall which is 30 cm. wide and made of one header only, possibly terminated on a terrace, running round the hemispherical dome *(anda)* of the *stupa* which is now missing. The pavement was perhaps 3-m. wide. The interspaces of spokes are filled with packing material of *kankar* and earth.

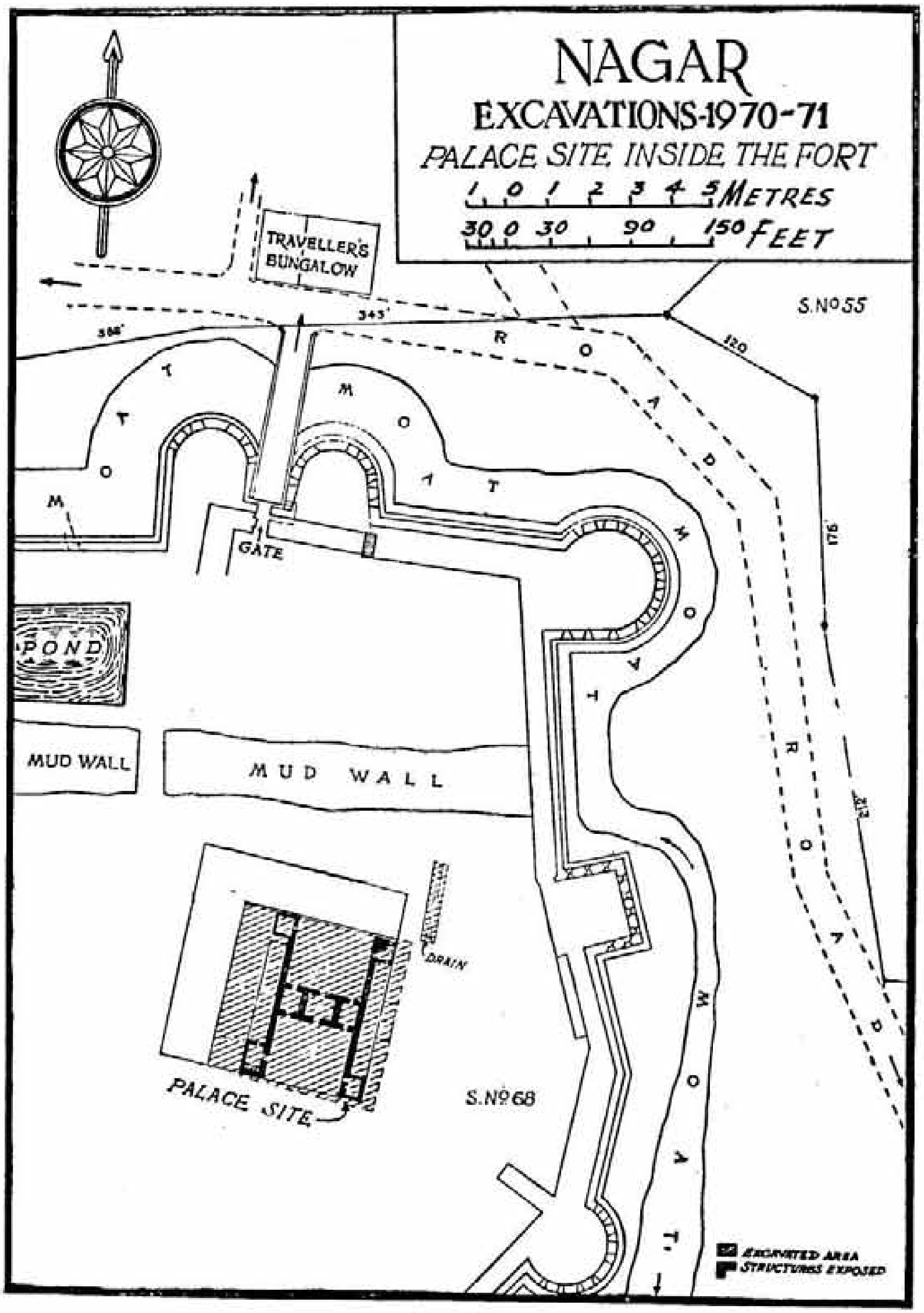

NAGAR
EXCAVATIONS-1970-71
PALACE SITE INSIDE THE FORT
1 0 1 2 3 4 5 METRES
30 0 30 90 150 FEET
TRAVELLER'S BUNGALOW
S.NO 55
ROAD
MOAT
GATE
POND
MUD WALL
MUD WALL
DRAIN
PALACE SITE
S.NO 68
EXCAVATED AREA
STRUCTURES EXPOSED

FIG. 10

To the north-east of the *stupa* was a structure of baked bricks which were plastered on the inner side with a 3-cm. thick lime.

The pre-structural deposit yielded sherds of crude black and grey wares, normally associated with the N.B.P. Ware.

RAJASTHAN

51. EXPLORATION IN DISTRICTS BHARATPUR, JAIPUR, SAWAI MADHOPUR AND TONK.— The Department of Archaeology and Museums, Government of Rajasthan, under Shri R. C. Agrawala, explored an extensive prehistoric site on the sand dunes near the Kalyanji temple at Benara, about 24 km. from Jaipur on the Jaipur-Agra Road. The cultural assemblage here appears to be similar to that at Bagore in District Bhilwara.

Shri Vijai Kumar of the Department of Archaeology and Museum, Government of Rajasthan, explored the following sites:—

(PG=Painted Grey Ware; BR=Black-and-red Ware; NBP=Northern Black Polished Ware; G=Grey Ware; R=Red Ware (Kushan) ; M=Medieval Ware; and T= Terracottas).

District	*Site*	*Associated Wares and other finds*
Bharatpur	Abar	PG, R
-do-	Bachamdi	R
-do-	Bahnera	RG
-do-	Barso	R
-do-	Dehra	BR, PG, NBP
-do-	Gamri	PG
-do-	Naogaya	R, Kushana bricks
-do-	Satwas	R, T
-do-	Surota	G, T
-do-	Therya	PG
-do-	Undra	PG
-do-	Viravai	PG, R
Sawai Madhopur	Richocha	R
Tonk	Pachala	R, Kushana bricks.

52. EXCAVATION AT NOH, DISTRICT BHARATPUR.—In continuation of the last year's work *(1970-71,* pp. 31-32), the Department of Archaeology and Museums, Government of Rajasthan, resumed excavation at Noh. The work was directed by Shri Vijai Kumar under the supervision of Shri R. G. Agrawala. The main objective of this season's dig was to obtain further details of the pre-Painted Grey Ware settlement with special reference to the position of the black-and-red ware. A trench, mesuring 16 x 5 m. was, therefore, taken up in the south-west part of mound-1.

The excavation confirmed the sequence obtained earlier in 1964-65. In period II, however, knowledge of iron was attested. The characteristic features of each period are summarized as under:

Period I, represented by a 45-70 cm. thick deposit of yellowish brown earth, mixed with *kankar,* showed the use of Ochre Colour Pottery. The O.C.P. sherds from Noh, orange to deep-red in colour, are wheel-turned. Most of them show rolled edges. Apart from the fragments of a basin and a carinated bowl, no complete shapes were available. The collection also included two sherds with incised linear decoration.

Period II was marked by the use of plain black-and-red ware, which forms a distinct phase between the deposits yielding the O.C.P. and the P. G. Wares. The black-and-red ware at Noh, represented mostly by dish and bowl, is quite different from that of Ahar. This also showed incised decorations which were noticed for the first time. The associated ceramics of this period were coarse red and black slipped wares.

The distinctive feature of this period, however, was the presence of shapeless iron pieces. The other finds included *ghata* (vase-shaped) bead and a bone spike. No structural remains were noticed in the area under excavation.

Period III was marked by a disturbed strata. However, sufficient quantities of Painted Grey and N.B.P. Wares were obtained from the related layers. The black-and-red ware was also present, though in less quantity. Other finds from the Period included: beads of semi-precious stones, copper, bone and terracotta; terracotta discs (incised and scalloped); terracotta wheels and gamesman; bone sockets; spikes and decorated figurines; objects of iron, like dishes, arrow-heads, spear-heads, etc.; hammer-stones; crucibles; and a Painted Grey Ware sherd having cloth impressions.

Period IV witnessed the total disappearance of the black-and-red Ware. The P.G. Ware, in a baser fabric, however, continued, along with the Ware. The other finds from the Period included: beads of terracotta, glass, ivory and stone; a steatite casket; corroded copper coins; and terracotta human and animal figurines.

Period V was characterized by the typical pottery of Sunga and Kushan periods. The Period is marked by eight structural phases. The exact plan of the houses, of course, could not be determined due to the limited nature of the area under excavation. The use of both sun dried and baked bricks was attested. Three earthen hearths in a single row as also a soak-well with sixteen terracotta rings were also exposed. Sherds decorated with the *'triratna'* and *'svastika'* symbols were also obtained. Noteworthy finds of the Period comprised copper coins; dices; flesh-rubbers; antimony rods; bangles of shell, glass and terracotta; potter's dabber; terracotta and stone beads, etc.; and a number of terracotta figurines, both human and animal. One terracotta humped bull showed the trident symbol over it.

TAMIL NADU

53. EXCAVATION AT KANCHIPURAM, DISTRICT CHINGLEPUT.—The Department of Ancient History and Archaeology, University of Madras, resumed *(1970-71,* pp. 32-33) excavation at Kanchipuram, under the direction of Dr. C. Krishnamurthy, assisted by Shri A. Swamy and Shri S. Gurumurthy. Trench KCM-4, near the Kamakshi temple, which was excavated in 1971 was extended further towards east, north and south with a view to getting more details of the remains of the *stupa-like* structure partially exposed last year. Besides, two more trenches were put near the Vaikunthaparumal Temple so as to collect more data about the material culture of the Pallavas. Another trench was put near the Ekambaresvara Temple.

The excavation confirmed the earlier known sequence of three cultural periods.

In Trench KCM-4, remains of the brick structures were fully exposed. The structures consisted of two walls, running in north-south direction and lying one above the other. While the upper wall ran straight (brick size: 56 x 23 x 8 cm.), the lower wall (brick size: 40 x 18 x 6 cm.) was curvilinear on plan forming a segmnent of a circle. Another wall, about 1 m. east of this structure, was also exposed. Around the structures were found number of post-holes which were found to be filled with sand, charred remains, ash, etc. Charred remains were also noticed in the levels just above the structure, suggesting that the site was probably destroyed by fire. Other finds obtained from the excavation included: Rouletted Ware; imitation amphorae jar (pi. XLIVA); inscribed sherds bearing Brahmi letters; terracotta coin moulds of the Satavahana period; a few heavily corroded copper coins; terracotta figurines (pi. XLV A and B), both human and animal; seals; bone objects (pi. XLIVB), representing *Srivatsa;* arrow-heads, points, etc., of iron; copper objects; shell bangles; and beads of glass, paste and semi-precious stones.

UTTAR PRADESH

54. EXPLORATIONS IN DISTRICTS ALLAHABAD, PRATAPGARH AND VARANASI.—The Department of Ancient History, Culture and Archaeology, University of Allahabad, under the direction of Prof. G. R. Sharma, assisted by Dr. R. K. Varma and Sarvashri V. D. Misra, B. B. Mishra and D. Mandal, continued explorations in the Soraon Subdivision of District Allahabad and the adjoining areas of Districts Pratapgarh and Varanasi. In the course of their recent explorations, Late Stone Age sites were located at Bichia, Bhikampur and Kurha, from 20 to 29 km. on the Allahabad—Unao Road. These sites were found to be situated on the old terrace of the Ganga known as Bhagar. At a number of places, the sections of this terrace are exposed and are found to be about 8-10 m. higher than the highest present flood-plain of the Ganga, indicating thereby that these formed the ancient bank of the river whence it receded southwards, making a 8-km. wide *khadar.* The exposed sections of the Bhagar shows a succession of four deposits (pi. XLVI A) (from top downwards): sandy clay; plastic-clays; blackish soil full of small *kankar* nodules; and yellowish *kankar.* There is no doubt that the sandy deposit capping the old formation marks the end of an epoch in the life of the Ganga and that it was deposited by the river with higher flood plain. A team of the Geological Survey of India which examined the exposed sections of the Bhagar of the Ganga on the one hand and the upper deposit of the Belan on the other, have also observed that the cemented gravel III of the Belan is contemporary with the lower most yellowish *kankar* deposit of the Bhagar, the black soil of the Belan with the blackish soil of the Bhagar and the top deposit of the Belan with the sandy soil of the Bhagar. The blackish soil perhaps marks the end of the Pleistocene in the history of Belan and Ganga. An elephant's tusk was also recovered from the Gravels of the Belan (pi. XLVI B).

From the top layer of the old deposit of Bhagar, cores, flakes and tools, belonging to the Late Stone Age, were found in different stages of manufacture. The finished tools consisted of scrapers, points, blades, parallel-sided and blunted-back and lunates made on chalcedony, agate, carnelian quartz and chert. No geometric tool was found. On the basis of both raw material and typology this assemblage can be equated with that of the earliest deposit of Lekhahia and Morahna Pahar. In the light of the available evidence these habitation sites represent seasonal migration and temporary camps in the newly reclaimed areas in the Ganga valley which, on account of its sandy character, could have supported shrub-like vegetation suitable for small game animal and birds.

The area to the north, measuring about 55 km. from this old bank, is characterized by the presence of a large number of horse-shoe lakes, most of which have been filled up but a few still exist. From the nature of these horse-shoe lakes it is clear that these represent the stages of the withdrawal of the Ganga to its present bed. On account of the perennial source of water and availability of small game animals and birds and riverine creatures like tortoise, shell and fish, these lake-areas probably served as ideal habitation-sites for the mesolithic man.

55. EXCAVATION AT KOLDIHAWA (DEOGHAT), DISTRICT ALLAHABAD.—The Department of Ancient History, Culture and Archaeology of the University of Allahabad undertook excavation at Koldihwa, situated on the left bank of river Belan, about 80 km. east and south-east of Allahabad. The work was conducted by Shri B. B. Misra, under the direction of Professor G. R. Sharma.

A cutting, measuring 6-6 m., was laid out on the western mound of the site. For excavation purposes This was further sub-divided into two small trenches designated as Al/A and Al/B. In the former trench, the excavation was carried down to the natural soil, which was reached at a depth of 1-22 m. below surface. The occupation strata comprised seven layers. In the latter trench, however, digging was restricted to the upper two layers only. The cultural contents of layers 2 to 7 was chalcolithic. In layer 2 were found structural remains, consisting of a floor made of rammed earth and burnt clods of clay enclosed by post-holes (pi. XLVII A). A cluster of complete pots in red and black-slipped wares was found lying on the floor. Within the excavated area many refuse pits, going to varying depths of 29 to 110 cm. were also noticed.

The ceramics (pi. XLVII B) obtained from the excavation consisted of red, black-slipped and black-and-red Wares. Most of the pots were thrown on wheel, though handmade pieces were also met with. The lower portion of some of the pots showed rusticated surface. Besides, a few of them were also decorated with painted, incised or applied patterns. Incised decoration was found on the pots of the red and black-slipped wares only. The common patterns being oblique and horizontal lines, criss-crosses, chevrons, wavy lines, zig-zags, etc. The painted decoration was available on red and black-and-red wares. In the latter fabric, the painting was executed in white pigment on the interior surface of the pots; the motifs being largely oblique strokes. Interestingly enough, the intended design was first incised and thereafter filled up with white pigment. In the red ware group, however, the painting was confined to the exterior surface of the pot, largely on the rim and neck portion and was executed in black pigment with linear and dotted motifs. Applique decoration, consisting of chain and rope patterns, was noticed on the big storage jars and straight sided troughs.

Other finds from the excavation included cores, flakes, blades, blunted-back blades, points, lunates, scrapers and triangles, mostly made on quartz. Some of the few cores, flakes and blades exhibited the employment of the crested-ridge technique, (pi. XLVIII) Besides, three fragmentary copper pieces of indeterminate use, beads of terracotta, bone, shell and semi-precious stone, bone arrow-heads of different types and a number of round pieces of pottery and stone of different sizes were also obtained. A few iron pieces and Kotia type of pottery were found from the top layer of the site, indicating thereby that the site was occupied by the megalithic-folk subsequently.

The assemblage of Koldihawa compares well with its counterparts at Kakoria on the Chandraprabha on the one hand and Chirand on the other. Prahladpur on the Ganga also offers some parallels.

56. EXCAVATION AT PIPRAHWA, DISTRICT BASTI.—Sarvashri K. M. Srivastava and A.D.P. Singh of the Mid-Eastern Circle of the Survey resumed *{1970-71,* p. 37) the small-scale excavation at the ancient site of Piprahwa. During this year, the excavation was confined to the main *stupa,* which yielded another two relic caskets, containing charred bones. The caskets, of different sizes, are made of soapstone, skilfully turned on a lathe.

The discovery is of considerable significance, for during the closing years of the last century, a stone box, containing relic caskets of the same material and shape but of different sizes, was excavated from the *stupa* by digging a shaft through the central part of the core. One of the caskets in the earlier collection bore an inscription in Asokan Brahmi.

The last year's trench against the *stupa* on the western side had revealed that it had two, if not three structural phases. With a view to confirming this evidence, trenches on both sides of the *stupa* were laid. The excavation revealed that in its latest stage, the *stupa* had a square base, embellished on the sides by niches at regular intervals. While two sides of the square base were being exposed, an underlying mud *stupa* came to light. The mud-*stupa* was found to be encircled on the outside by a single course of baked bricks.

The *mud-stupa,* which was not observed by earlier excavators was a good indication for further relics. Hence the shaft, bored earlier was extended in the north-eastern quadrant of the *stupa.* At about 6 meters below the extant top course of the *stupa,* two baked brick containers (pi. XLIX A) were exposed. These brick containers were found at a lower level than that of the stone-box containing the inscribed casket found earlier. The shape of the two containers is identical.

The specific purpose of the containers to keep certain sacred objects is evident from the nature of their construction. When three courses of bricks of the northern container were removed, a soapstone casket came to light. By the side of the casket, and separated by a brick-bat, one red ware dish covered by another (pi. L B) was also found. The position of the casket and dishes was a little different in the southern brick container. Two dishes . (pi. XLIX B) of the same type and size, as found in the northern container, were noticed side by side after the top-most course of the bricks was removed. When two further courses of bricks were removed, another soapstone casket (pi. LA), bigger in size, was exposed.

Whether the newly-found relics contained in the brick-containers belong to an earlier date remains to be established. The discovery of the fresh relics, however, is likely to help a great deal in the exact location of Kapilavastu.

57. EXCAVATION AT LAL QILA, DISTRICT BULANDSHAHR.—In continuation of the earlier work, *(1969-70,* pp. 38-40) the Department of History, Aligarh Muslim University, resumed the excavation at Lal Qila. The work was conducted under the direction of Dr. R. C. Gaur. The purpose of this year's excavation was to determine the exact nature of the floors and, if possible, to trace out any house plan.

It may be recalled that the earlier operation had brought to light a well-preserved clay plastered floor, reinforced with horizontally laid potsherds, in the second phase of the deposit. This floor was further exposed, and its present limits were determined. A new floor comparatively smaller in area was also exposed in this phase with a series of distinct post-holes. As was already reported, the use of mud-bricks became evident in the second phase. Though no complete house-plan could be determined, an angle of a room containing five courses, covered under a mud-brick debris, was brought to light. The structure, however, was badly damaged, and it was not possible to determine the exact

FIG. 2

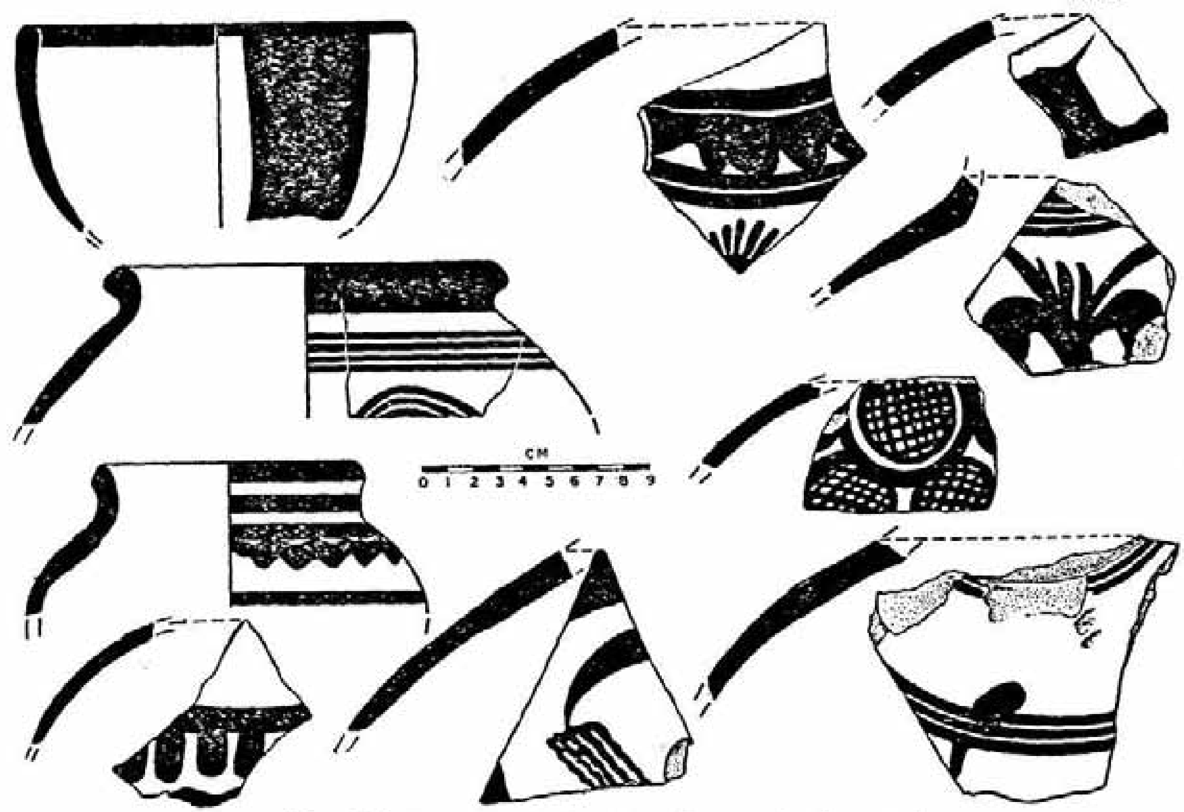


FIG. 11. *Lal Qila : Ochre Colour Pottery, showing paintings*

thickness of the walls. However, at places the bricks were also seen laid in single course with mud mortar. Mud-clods and brick-bats were frequently used.

Small debris of baked bricks, attesting their use along with mud-bricks, was noticed here and there in the third phase. The complete size of mud or baked brick, except that of wedge-shaped bricks already reported, could not be determined. However, their size varied between 27 to 30 cm. in length, 20 to 23 cm. in width and 7-5 to 10 cm. in thickness. Remains of a few floors, though damaged considerably, were also noticed in this phase. The general pattern of their laying was almost like those found in the second phase.

The occurrence of reed and bamboo-marked burnt plasters, mud-clods and burnt patches indicated the use of thatched roof and walls of wattle and daub.

A large quantity of pottery, some of it decorated with beautiful painted motifs (fig. 11), was obtained from the excavation.

58. EXCAVATION AT SAIPAI, DISTRICT ETAWAH.—In continuation of the last year's work *{1970-71,* p. 38) excavation was resumed at Saipai (pi. LI A) by Shri L. M. Wahal of the Northern Circle of the Survey, under the general direction of Shri B. B. Lai. The objective of this season's work was largely to determine the extent and nature of the deposit yielding the Ochre Colour Pottery as also to collect more materials therefrom. In the 1-20-m. thick deposit, overlying the natural soil, no regular signs of habitation were noticed. The pottery belonged to the class of Ochre Colour Ware, often showing a slipped surface.

Amongst the shapes (pi. LI B), mention may be made of lids, deep basin or bowls with incised decoration (pi. LII A and B). Besides pottery, other finds obtained from the strata included a chert blade, a flake of chalcedony and a few balls of sandstone. This year's excavation, however, did not yield any copper tools.

59. EXCAVATION AT BHITARI, DISTRICT GHAZIPUR.—The Department of Ancient Indian History, Culture and Archaeology of the Banaras Hindu University resumed *{1969-70,* p. 41) the excavation at Bhitari under the direction of Dr. K. K. Sinha. This year's work was confined to exposing the remaining portions of the plan of the terraced temple which was noticed last year. An interesting feature revealed by the excavation was that the rivulet had shifted its course causing the disappearance of the entire north-west quarter of the temple. The reconstructed plan of the temple would make the north-west corner of the temple to overhang on the river. It is, therefore, almost certain that the river during the Gupta period flowed further north-west from its present course at the point where the temple was erected.

The excavation was restricted to the south-eastern portion (pi. LIII A). As the walls and the flooring of the sanctum revealed (pi. LIII B), there were two clear stages of construction. The overall plan of the temple, however, remained unchanged. The salient features of the plan consisted of a square sanctum (16 x 16 m.), built over a terrace measuring (34 x 34 m.). The terrace had the usual cell-foundation as has been the case at other brick-temples of the Gupta period, viz. Ahichchhatra, Bhitargaon, etc. While both north and south sides of the terrace showed projections (18x4-48 m.), the corresponding position on the east and west was unclear. While the west side, facing the river, had completely disappeared, only the foundation course of the east side wall (pi. LIV) was visible. It was, therefore, not possible to determine whether the entrance was from the west or from the east. At Bhitari, while the main temple near the Skandagupta pillar had an east side entrance, the smaller shrine facing the river had its access from the west.

The brick-flooring of the sanctum showed noteworthy features. As stated above, it showed two clear stages of construction. In the earlier stage, complete bricks measuring (40 x 25 x 6 cm.) were laid. In the second stage, it was mostly brick-bats. In order to facilitate construction, the area was divided into grids formed by laying the uprights. The grids thus formed were paved with brick-bats. The sanctum walls had the normal width of about 1 m. which would indicate that it was a single-storeyed shrine and was devoid of a *shikhara.* A circumambulation passage of about 2-50 m., paved with brick-jelly, separated the shrine from the inner face of the terrace.

Although the construction of the temple was in brick, Chunar sandstone appears to have been used in good measure, as is evident from a large number of sculptured pieces. An interesting feature of the stone used here is that it was of a light-red colour and not like the sandstone pieces of the other areas. One of the stone-pillars recovered from this area shows a seated Garuda in a half-medallion.

The sculptured pieces, the terracotta figurines and pottery-types, including the well-known sprinkler-type, all point towards the fact that this temple too belonged to a period not far removed in time from the temple near the Skandagupta pillar.

60. EXCAVATION AT SONKH, DISTRICT MATHURA.—The German team, headed by Prof. Dr. H. Haertel continued *(1970-71,* pp. 39-40) its work at Sonkh. The main objective of this season's work was to excavate squares 6 HI/6 IV, where the remains of a second apsidal temple had already been partly exposed.

The excavation revealed the complete outline of the temple (pi. LV). The cella was found to be surrounded by bases of fifteen (brick) pillars. The temple itself shows two structural phases; of these, the lower one, preserving the full outline, is built of 48 x 23 x 7 cm. size mud-bricks, while the upper one is seen only near the entrance side in the east, where remains of a baked brick superstructure were found. The superstructure along with the fifteen pillars belong to a later phase of the temple, situated on a platform which was bounded by a brick-wall. On the basis of the coins found in the brick debris, this later phase is assignable to the time of Kanishka I. The measurements of the temple were as follows: diameter of the apse, 3-80 m.; the length of the apsidal temple, 7*3 m.; the entrance opening 1-60 m. framed by a 1-10 m. broad wall-pillar each to the left and right sides; the distance between the axle of a pillar and the outer edge of the apsidal wall, 0-85 m; the distance between two pillars, 1-20 m. to 1-40 m.; and the size of the platform on which the temple is built, 15 m. by 11-50 m. Wall structures protruding underneath seem to have been covered by an artificial slope. South of the apsidal temple, at a distance of about 5 m. from the platform, were found fragments of a stone railing. Likewise east of the temple, some pieces of a gateway came to light. These obviously had fallen when the gateway collapsed. This points to the fact that the apsidal temple was provided, at least on its southern side, with a stone railing and on the east, a gate of the three-architrave-type. The line in which the *stambha* fragments and *suchis* were found, supports the assumption that the railing had a straight course.

There is no doubt about the nature of use to which this later phase of apsidal Temple no. 2 was put. The finds showing snake representations are so frequent and its meaning and position so clear that one can, with all certainty, talk of a shrine for the *naga* cult, decorated by a few of the best artists of the time. Samples of the stone remains are the western end-piece of the bottom architrave with the depiction of a *makara* and *a. naga* (pi. LVI A), the relief on the middle bottom-lintel with a nineteen-figure *naga* scene (pi. LVI B) and a *salabhanjika* bracket (pi. LVI C) from the western side of the gate.

61. EXCAVATION AT SARAI NAHAR RAI, DISTRICT PRATAPGARH.—The Department of Ancient History, Culture and Archaeology, University of Allahabad, and the State Department of Scientific Research and Cultural Affairs, Government of Uttar Pradesh, conducted excavation at Sarai Nahar Rai. The work was conducted under the direction of Prof. G. R. Sharma, with assistance from Dr. R. K. Varma, Sarvashri V. D. Misra and D. Mandal of the University of Allahabad. Shri R. C. Singh of the State Department of Archaeology participated as a trainee.

The site is situated about 15 km. south-west of Pratapgarh on the bank of a horseshoe lake, the major portion of which is now dry; only near the village of Srinagar, nearly 4 km. to the west, it still survives for about 8 months of a year. The ancient soil is marked by saline character while that of the lake by blackish colour and its fertile nature.

In all, eight skeletons, four hearths and a floor were exposed in this season's excavation. In the case of skeletons it was found that shallow oblong grave-pits were dug out in hard natural soil. On the floor of each grave-pit was a soil cushion, 3-4 cm. in thickness, over which was placed the skeleton along with microlith and a particular type of shell. The skeletons (pls.LVII A and B and LVIII A and B) were found to be in an extended position, in west-east orientation, with the head lying towards the west. In the case of at least two graves, a tumulus of about 5 cm. in thickness was also noticed.

In three graves microliths were found attached with or sticking into the bones of the

skeletons. In the case of one burial, a point (microlith) was found having pierced one of the ribs. The skeletons have an average height of nearly 1-80 m.

Besides the graves, a number of hearths (pi. LIX A) either oblong or circular on plan and a floor were also excavated. These yielded burnt clay lumps, animal bones—charred and uncharred—and microliths (pi. LIXB). The animal bones recovered from the hearths and floors indicate existence of stag, bison and rhinoceros. Fish, tortoise and shell collected from the lakes constituted an important source of food supply. Pottery was completely absent from the deposits in the graves or hearths. A radiocarbon date of 8395 ±110 B.C. was indicated by the calcified bone, obtained in the earlier excavation. More confirmatory dates are, therefore, needed for this assemblage.

62. EXCAVATION AT TAKIAPER, DISTRICT VARANASI.—The Department of Ancient Indian History, Culture and Archaeology, Banaras Hindu University, under the direction of Shri T. N. Roy, carried out excavation at Takiaper in Tahsil Chakia. The site is located on the right bank of the Karmanasa, about 10 km. north-west of Chakia. The objective of the excavation was to ascertain the cultural sequence of the region. As a result of the excavation, two cultural periods, with a break in occupation, were recognized. The characteristics of each period are as follows:

Period I was represented by the occurrence of the black-and-red, black-slipped and the more famous N.B.P. Wares. Other finds included bone points, few microliths, antimony rods, pottery discs, terracotta animal figurines, besides copper and iron objects. No structural remains of the Period were brought to light in the cuttings.

Period II was distinguished by the cultural assemblage of the early centuries of the Christian era. Two successive structural phases were encountered in the deposits belonging to this Period. In the foundation of the buildings of the earlier phase, the use of stone was very popular. In the later phase, the structures were only of large-sized bricks.

The stone-house complex (pi. LX A) had two wings, each having two rooms (pi. LX B). In the smaller wing, the sizes of the rooms were respectively 2-15 x 2*10 m. and 2-26 x 2-10 m., while in the larger, these were 4-10 x 2-70 m. and 1-60 x 2-20 m.

In the smaller wing, the two rooms, were also interconnected through an opening. The main entrance to these rooms was from the front corridor but there was a small opening also from the back. In the longer set, the rooms were not interconnected, although there was an entrance in one of the bigger rooms. In the later structural phase, remains of a room (pi. LXI A), measuring 4-90 x 3-20 m. and an adjoining floor were exposed.

A notable find of this Period was a seal (pi. LXI B) of black stone, inscribed in Brahmi characters, palaeographically assignable to the first-second century A.D.

WEST BENGAL

63. EXPLORATION IN DISTRICT BURDWAN.—Shri P. C. Das Gupta, Dr. S. C. Mukherjee and Shri P. N. Malakar of the Department of Archaeology, Government of West Bengal, discovered chalcolithic black-and-red ware and the associated red ware on the eroded surface of Siuliburir Danga, a few kilometres to the north of the Damodar near Panagarh. During this exploration, the forest of Gopalpur near Durgapur was revisited. An appreciable number of tools, flakes and cores of Late Stone Age were recovered from the yellowish and sandy silt stretching over the lateritic detritus of the region. The tools included crested and backed blades as also scrapers of chert.

64. EXCAVATION AT BHARATPUR, DISTRICT BURDWAN.—A small-scale excavation was undertaken at Bharatpur jointly by the Eastern Circle of the Survey and the University of Burdwan. The work was carried out under the overall supervision of Dr. S. C. Ray and under the direction of Shri S. K. Mukherjee, assisted by Sarvashri V. Sen and K. P. Gupta. The site lies on the left bank of the Damodar, about 7 km. south-east of Panagarh railway station. The excavation yielded remains of a brick-built Buddhist *stupa* (pi. LXII A) measur ing 12-75 x 12*75 m. at the base. The ornamental façade of the *stupa* was embellished with a number of niches on each side which contained beautiful seated sculptures of the Buddha (pi. LXII B) in *bhumisparsa mudra.* Stylistically, these sculptures are ascribable to the ninth-tenth century A.D. A monastery-complex connected with the *stupa* was also partially exposed.

65. EXPLORATION IN DISTRICT MURSHIDABAD.—Shri P. C. Das Gupta of the Depart ment of Archaeology, Government of West Bengal, explored an extensive site near Jangipore by the side of the ancient bed of the Bhagirathi. Two gold coins of Narsimha Gupta Baladitya had been obtained earlier from surface of the main mound. The main mound is locally known as Lakshmi Hatir Danga. The pottery collected from the site included thick storage jars, spouted vessels and decorative pan-handles and lids. Examples of pre-Mughal glazed Ware were also found.

66. EXCAVATION AT RAJBADIDANGA, DISTRICT MURSHIDABAD.—In continuation of the previous season's work *{1968-69,* p. 43) excavation on a limited scale was resumed at Rajbadidanga by Prof. S. R. Das, assisted by the teachers, students and other members of the staff of the Department of Archaeology of the University of Calcutta. The objective of this season's field work was to obtain a complete plan of the principal monastery-complex at the site.

Only three trenches (C-4, A-9 and A-10) were undertaken for digging; two (A-9 and A-10) in the western sector for tracing the south-eastern corner of the side-wall of the main entrance to the monastery, the north-eastern corner of which was partly exposed during the last season, and one (C-4) in the northern sector for ascertaining the continuation of the eastern sides of the previously uncovered walls of the monastery. In all the trenches, the digging was carried to the natural soil, with the result that structural—complexes, belonging to five distinct phases, were recognised.

In trench A-9, the continuation of the side-wall of the main entrance to the monastery in the southern direction and its south-eastern corner was traced. From its south-eastern corner, the wall (pi. LXIII A) ran in western direction up to a length of 6-32 m. in trench A-10. The platform made with one course of brick-laying, corresponding to this wall on the south, was exposed at a depth of 1-72 m. below surface. Deep digging in an area on the southern side of the wall was continued up to the natural soil at a depth of 3-16 m. below surface, revealing the foundation of the wall and also its earlier platform. Another wall on the north, running in east-west direction, was uncovered up to a length of 4-94 m. where it formed a corner and turned northwards up to a length of 2*44 m. The intervening space between the two walls was covered by a later floor made of *surkhi-ramming* upon brick bat laying. On the northern side of the wall, deep digging was done up to a depth of 2-44 m. disclosing an area strewn with *ghutings* (lime-gravels) having the appearance of a mosaic floor in alignment with a large drain-channel.

In trench C-4, several structural remains (pi. LXIII B). belonging to five construc-tional phases, were unearthed. The walls running in east-west direction, showed a deliberately-cut hole, and a large stone block of irregular shape was found lying inside the

deposition of debris covering the walls. The most interesting structure uncovered in this trench was a square column measuring 1-22 m. x 1-22 m. It was built with large-sized and well-burnt complete bricks on a thin layer of compact clay resting upon loose debris. Besides, deep digging was carried out in a restricted area on the eastern side up to a depth of 3*16 m. below surface, revealing the foundations and constructions of a heavy wall on the east and another on the north and also fine and sand deposition at the bottom of the excavated pit. Again, deep digging on the northern side of the wall disclosed its foundation at a depth of 2-82 m. below surface. Remains of *surkhi-rammed* floors, corresponding to walls of different phases (pi. LXIV A and B), were also uncovered.

The excavation yielded pottery fragments of pitchers, pans, dishes, plates, lamps, etc. Sherds, bearing impressed and incised decorations, were recovered from all levels. Some highly polished black-and-red ware sherds were, however, obtained from the intermediate level. The most significant discovery of the present season's excavation was a fragmentary vessel of the well-known sprinkler (?) variety. Its fragments were found lying over a small area (trench C-4) inside the deposition of debris covering the walls at a depth of 1*34 m. below surface. The same layer also yielded several fragments of sprinklers. The vessel is of medium fabric and bears incised and impressed decorative patterns and red slip application on its external surface. It may be recalled that during previous season's excavations at the site many fragments of sprinklers, mostly the upper portions, i.e., neck portions of bottles, flanged rims, knob, etc., were discovered from both lower and upper levels. It is for the first time that a somewhat complete vessel of this variety could be recovered. Other pottery objects obtained from the site included beads, balls, discs, cones, figurines, flesh rubber, crucibles, etc. A few stone beads were also found. Miscellaneous finds comprised shell bangles, cowrie, iron objects, bronze rings, etc.

Structural remains and all other finds are to be attributed to the previously determined six constructional phases and three cultural periods dating from *circa* third to tenth-eleventh century A.D.

The present season's excavation revealed the continuation of the entrance-wall towards the south from its north-eastern corner. Its south-eastern corner was fully exposed. The wall thence running towards west was also uncovered along with its earlier and later platforms. The complete plan of the structural remains in trench G-4 of the northern sector could not be obtained.

67. EXPLORATION IN DISTRICT PURLIA.—Shri D. K. Chakravarti of the Directorate of Archaeology, Government of West Bengal, during the course of exploration in this District, noticed Copper Hoard objects, comprising three shouldered axes (pi. LXV A), and an elongated pick-like object (pi. LXV B) or plough-share, which had earlier obtained from Kulgara during a Test Relief operation in the Hura forest. The site is situated close to the stream Patol which is a tributary of the Kangsavati.

Further exploration along the stream by Shri Sudhir Dey of the same Department brought to light a site at Kesargarh, yielding blades, flakes and cores, amidst alluvial and sandy deposits forming high cliffs of the stream.

68. EXPLORATION IN DISTRICT 24-PARAGANAS.—During a brief survey, conducted along the stream Piyali in the District, remains of a post-Gupta temple, mainly comprising door-jambs, lintels, basements, etc., carved in black basalt, were noticed at Brahman Ban near Sarberia. A door-jamb carved with Ganga, gracefully standing within a miniature shrine, crowned with a pyramidal tower, reveals the calm dignity and sensitivity of the Gupta tradition.

II. EPIGRAPHY

SANSKRITIC AND DRAVIDIC INSCRIPTIONS[1]

ANDHRA PRADESH

1. KAKATIYA INSCRIPTIONS, SENIGARAM, DISTRICT KARIMNAGAR.—Of the five inscriptions, the earliest record dated in Saka 973 (A.D. 1051) is the only record of Beta I available so far. All these five inscriptions reveal certain facts regarding the history of the early members of the family, viz. Beta I, Prola I, Beta II and Prola II.

2. COPPER-PLATE INSCRIPTION, KUKKANURU, DISTRICT KHAMMAM.—This undated record, engraved in Telugu language and characters of the eleventh century, belongs to the Mudugonda Chalukya king, Kusumaditya, who granted certain royal privileges and the city Krivvaka in Visuru-nandu as an *agrahara* on the occasion of *Uttarayana* to his *pradhanis* Sri-Karanamu Imdaparaju and his brother Remaraju who had helped him by giving away their hereditary wealth and their own territory, viz. Visuru-nandu and also suffered for twelve years along with the king probably during a *bhumipraghatta* which occurred in the first regnal year of the king.

3. INSCRIPTIONS, MADUPALLE, DISTRICT KHAMMAM.—Two Telugu inscriptions engraved on a broken Nandi pillar in the temple of Rajanarendresvarasvami are dated in Saka 1216 (A.D. 1294) and Saka 1233 (A.D. 1311) respectively. The former refers to the deity Narendresvara Sri-mahalingadeva and to the lands bestowed from time immemorial, while the latter preserves only the date portion.

4. INSCRIPTION, MATURU, DISTRICT KHAMMAM.—A Telugu inscription, in characters of the thirteenth century, engraved on a pillar set up by the side of the Sitaramasvami temple, records the construction of the Trikuta temples of Kesavadeva, Suryadeva and Mallikarjuna-mahadeva and an endowment of two groves. It also records another endowment of land to the same temples by Mahamandalesvara Raya Mummadi Duggaraju.

[1] Information from: 1, the Director of Archaeology and Museums, Andhra Pradesh, 6, the Director of Archaeology, Gujarat State; 7, the Director of Archaeology and Museums, Kerala State; 17, 45 and 50 Prof. K.D. Bajpai, Sagar University, Sagar; 24, the Director of Archives and Archaeology, Maharashtra State; 25, Dr. (Smt.) Shobhana Gokhale and Shri Anna Shirgaonkar of the Deccan College and Post-Graduate Research Institute, Pune; 32 and 33, the Director of Archaeology and Museums, Rajasthan State; 36, 38 and 39, the Director of Archaeology, Tamil Nadu; and the rest from the Chief Epigraphist of the Survey.

5. INSCRIPTIONS, DISTRICT MAHBUBNAGAR.—Two inscriptions from Bekkam and Kudavalli are in Kannada and Telugu respectively. The first, engraved on a pillar in the Muktesvara temple and dated Saka 987 (A.D. 1065), records the grant of land to Kasmira-pandita to provide for the worship of Cholesvara by Ketarasa and Rajarasa. The second, from Mudavalli, engraved on a pillar in the Sangamesvarasvami temple and dated Saka 1322 (A.D. 1400), records ^the renovation of the *sikhara,* the *mandapa* and the *bhavanti* of the temple. It also refers to the *Sukhamritasripada* and to the *pedda-karanam of* Kamdanavrolu.

GUJARAT

6. MAITRAKA CHARTER, DHUNADA (KHANAPUR), DISTRICT RAJKOT.—This record in Sanskrit and Western characters, issued from Kasalakiyagrahara in the Gupta-Valabhi year 217 (A.D. 536) in the reign of Dhruvasena I (pi. LXVI), registers the grant of the village Rajya-Mitranakapadra in Dhanti-*vishqya* as *brahmadeya* to *brahmana* Kumara, a resident of Pushyatari in Kachchha-*vishaya* and belonging to Bhaguri-*gotra* and Maitra-yaniya -*sakha.* The *dutaka* was the *Rajasthaniya* Bhatti and the writer Kikkaka.

KERALA

7. INSCRIPTION, PONNANI, DISTRICT PALGHAT.—This inscription is in the Dakshi-namurti temple. It is in old Malayalam language and in Vatteluttu characters of about the eleventh century. It records the *kachcham* of the temple association.

MADHYA PRADESH

8. CHHINDA CHARTERS, DISTRICT BASTAR.—Three copper-plate grants in Telugu language and characters were discovered at Bhairamgarh. The first charter, dated Saka 985 (A.D. 1063) in the reign of Jagadekabhushana, records the grant of Boddakachara to Manabhattu on the occasion of the birth of a son, named Somesvara, to the king by his queen Gunda-mahadevi. The second, dated in Saka 1017 (A.D. 1096) in the reign of the same king, records the grant of Gammalunandu to Isvara-nayaka. The third, only a a stray plate, in characters of the eleventh century, records a grant to Poti-bhattu and Somanatha-bhattu.

9. EARLY BRAHMI INSCRIPTION, CHANDERI, DISTRICT GUNA.—On the rock-wall of a *ghati* in the hillock near the town is engraved an inscription in early Brahmi characters of about the first century B.C. It reads *Bha[i]Kabu...* .Above this writing there is a line of engraving containing symbols like *srivatsa* and *svastika.*

10. INSCRIPTION, CHANDERI, DISTRICT GUNA.—A stone slab with writing in Nagari characters of about the tenth century, was discovered at Budhi Chanderi and is now kept in the Sculpture Shed at Chanderi. The record is in local dialect and is dated Vikrama [9] 64 (A.D. 908). It appears to record some action of a certain Ravula, and mentions the names like Chichhu,-Kesava and Bhanta.

11. JAINA IMAGE-INSCRIPTIONS, CHANDERI, DISTRICT GUNA.—Several Jaina images with inscriptions in Nagari characters and Sanskrit language engraved on their pedestals were found here. Seven such epigraphs, all dated Vikrama 1690 (A.D. 1634), record the installation of the images by one *Samghadhipati* Chhitaradasa and some other *Jainas.* They also contain the names *of Jaina* pontiffs like *Bhattaraka* Padmakirtti, the disciple of *Bha"* Dharmakiritti who was a disciple of *Bha*^{0} Lalitakirtti.

12. MUGHAL INSCRIPTION, CHANDERI, DISTRICT GUNA.—Engraved in embossed Nagari characters on a pillar and dated Vikrama 1736 (A.D. 1679-80), this inscription in Sanskrit and local dialect, refers to the rule of the Mughal emperor Aurangzeb and also mentions the local chief Devasimha of the Bundela country.

13. MUGHAL INSCRIPTION, GWALIOR.—Engraved on a stone slab built into the *chhatri* near Mansingh's palace inside the fort, this Sanskrit inscription in Nagari characters is dated Vikrama 1661 (A.D. 1604) and records the construction of the *suprabhavedi* by *Sravakas* Shosha, Sripala, Narayanadasa, Bhojaraja, etc., during the reign of Jalala-din (i.e., Jalal-u-ddin Akbar). It mentions *Bhattaraka* Jagadbhushana, the disciple of Jnanabhusha [na*], the disciple of Silabhusha [na*] who was the disciple of *Bhattaraka* Dharmakirtti of Valatkara *gana,* Bharatiya *gachchha* and Mula *samgha,* and also refers to an otherwise unknown local chief Rajasimha who was the son of Karnesa.

14. JAINA IMAGE INSCRIPTIONS, PANIAR, DISTRICT GWALIOR.—Engraved on the pedestals of ten Jaina images and dated Vikrama 1529 (A.D. 1472), these inscriptions in Nagari characters and Sanskrit language, record the perpetual obeisance of *Sam* Horila and *Sam* Virabhanu. These give the same *Bhattaraka-parampara* as found in No. 11 above and some of them mention *Mandalacharya Sri* Tribhuvanakirttideva.

15. Two PILLAR INSCRIPTIONS, PANIAR, DISTRICT GWALIOR.—One of them in Nagari characters and Sanskrit language is dated Vikrama 1822 (A.D. 1765-66). It contains the genealogy of a *brahmana* family of Vasishtha *gotra* and also states that *Thakura* Nihalasimgha was the local chief. The other inscription, also in Nagari characters and Sanskrit language, is dated Vikrama 1891 (A.D. 1834) and records the performance of a sacrifice by three *brahmana* brothers Giradharilala, Pirathipala and Muralidhara of Vasishtha *gotra* during the time of the local chief Thakura Gumana-simgha.

16. Two TOMAR INSCRIPTIONS, PANIAR, DISTRICT GWALIOR.—Engraved on the pedestal of two Jaina images, the inscriptions are in Nagari characters and Sanskrit language. One is dated Vikrama 1525 (A.D. 1468), while the other is dated Vikrama 1529 (A.D. 1472). Both of them belong to the reign of Kirttisinghadeva, the Tomara ruler of Gwalior. They record the perpetual obeisance of *Sam°* Horila and *Sam°* Virabhanu, the sons of Amarasi and mention *Bhattaraka* Samghakirttideva of Kumdakumdacharya *anvqya,* Sarasvati *gachchha,* Balatkara *gana* and Mula *samgha.* They mention also Mandal acharya Tribhuvanakirttideva.

17. Two INSCRIPTIONS, HOSHANGABAD.—Of these two Nagari inscriptions, one dated Vikrama 1253 (A.D. 1196), refers to Mahakumara Sri Harishchandra, probably of the Paramara dynasty, while the other, dated Saka 1493 and Vikrama 1628 (A.D. 1571), mentions the town of Hoshangabad.

18. EARLY BRAHMI INSCRIPTION, SAGAR.—This record is engraved along the peri phery of a counter-sunk square incuse on an object of lead, probably intended for weighing, discovered at Eran and now in the possession of Prof. K. D. Bajpai of the Sagar University. It is in Brahmi characters of about the first century B.C. and in mixed dialect and seems to read *Rajno Idaguptasya.*

19. CHHATRI INSCRIPTIONS, NARWAR, DISTRICT SHIVPURI.[J]—Three Sanskrit inscriptions in Nagari characters, engraved near the foot-prints in the three *chhatris* near the Digambar Jain Mandir inside the fort, are dated in Vikrama 1834 (A.D. 1777). One of them records the installation of the foot-prints of *Acharya* sri Udaikirtti, the disciple of *Bhattaraka* Rajakirtti of Kumdakumdacharya *anvaya,* Balatkara *gana,* Sarasvati *gachchha,* and Digambara *anvaya* and mentions the seat of the pontificate at Bhelsa Sironj in the Malavadesa (i.e. Malwa). Another records the installation of the foot-prints of *Pamdita sri* Rupachamda, the disciple of *Acharya sri* Udaikirttiji, obviously the same as figures in the previous item. The third inscription records the installation of the foot-prints of a lady named Chamdramati, a female disciple of the above mentioned *Acharya* Udaikirtti.

20. INSCRIPTION IN THE FORT, NARWAR, DISTRICT SHIVPURI.—Engraved on a stone slab built into the wall of a small shrine inside the fort, this inscription in Nagari characters and local dialect is dated Vikrama 1338 (A.D. 1281-82) and records the installation of and the perpetual obeisance to Vishnu by a lady named Nago, the wife of *Madalika (Mandalika)* Achita.

21. TOMAR INSCRIPTION, NARWAR, DISTRICT SHIVPURI.—Engraved on a pillar of the Jumma mosque and dated Vikrama 1524 (A.D. 1467), this inscription in Nagari characters and local dialect, refers to the reign of king Kirttisimha of the Tomara dynasty of Gwalior. It appears to record that the ruler received *adesa* (i.e. blessings) from a certain Magaradhuja-sidha.

22. CHANDELLA COPPER-PLATE CHARTERS, KUNDESHWAR, DISTRICT TIKAMGARH.—One of them is dated in Vikrama 1060 (A.D. 1004) and refers to the reign of the Chandella king Vidyadhara. It is in Nagari characters and Sanskrit language and records the grant of some *padas* of land in Isauni in Varangavettarasikha-*vishayabhoga* to several brahmanas of different *gotras* by the chief queen Satyabhama on the occasion of the solar eclipse in the month of sravana in that year. This charter is important in that it is the first known record of the ruler in question and also supplies us with a definite date for him. The other charter belongs to the time of the king Paramarddin. Dated Vikrama 1255 (A.D. 1198), this Sanskrit inscription records the grant of several *padakas* in the village of Vyadita situated in Vodithari-*vishqya* to several *brahmanas* of different *gotras* by the king, on the occasion of the *Uttarayanasamkranti,* while he was camping at Jedadaha.

23. CHANDELLA INSCRIPTIONS, DISTRICT TIKAMGARH.—Dated Vikrama 1237 (A.D. 1180) one inscription in Nagari characters and Sanskrit language is engraved on the pedestal of the main image in the Digambar Jain temple at Ahar. It refers to the reign of Paramadi who is identical with the king Paramarddin of the Chandella dynasty. It records the construction of a *chaitya* of Sri Santinatha in Madanesa-sagarapura (i.e. Ahar) by Jahada and Udayachamdra, the sons of *Sreshthin* Galhana, the son of Ralhana, the son of Ratnapala, the son of Devapala of the Grahapati family and resident of Vanapura. The

image was made by Papata, the son of Valhana. Another damaged inscription, engraved on a rough stone-slab fixed into the ground on the bank of the village tank at Ladvari, is dated Vikrama [1368] (A.D. 1311-12) and refers to the reign of Viravarmmadeva. This ruler may be identified with Viravarmma II who is supposed to have flourished in the Chandella family after Hammiravarman (see, Cunningham, *ASIR,* Vol. XXI, p. 54).

MAHARASHTRA

24. VAKATAKA CHARTER, MAHURJHARI, DISTRICT NAGPUR.—This copper-plate charter belongs to Prithivisena II of the Vakataka dynasty. It refers to the grant of the village Jamalakhetaka in Suramhi *rajya* to the *brahmanas,* Vishnu-datta and Bhavadatta, by Prithvisena II in his seventeenth regnal year.

25. TRIKUTA CHARTERS, MATVAN, DISTRICT RATNAGIRI.—The first records entirely a new king of the Trikutaka House. Madhyamasena, the donor of the plates most probably might be the son of Vyaghrasena. The Kanheri plates of the Trikutakas do not mention the name of the king but with the discovery of these Trikutaka plates very interesting information has come to light; they not only record a new king of the Trikutaka House but also afford evidence to fix the terminal point of the end of the Vakataka king Harisena.

The second is important in many respects. Vikramasena most probably might be the son of Madhyamasena. The inscription records the earliest epigraphical evidence of the name 'Katachui' and secondly it throws welcome light on the obscure history of the Traikutakas.

26. INSCRIBED POTSHERD, KANHERI, DISTRICT THANA.—A broken piece of a pot, with inscription on it in Southern characters of about the end of the fifth century A.D. and in Sanskrit language, was discovered in Cave No. 25 at Kanheri. The inscription appears to read *Ahudissa ghatah,* probably connoting that the pot belonged to a certain Ahudi.

MYSORE

27. KALACHURI INSCRIPTION, GULSARAM, DISTRICT GULBARGA.—This Kannada inscription, engraved on a boulder behind the temple of Siddhesvara, belongs to the reign of Sankamadeva. Dated in the fourth regnal year of the king, Vikari (A.D. 1179), the record registers a grant of land to the deity *svayambhu* Siddhanathadeva, after laying the feet of Samkarasivapamdita, son of Kesava-pamdita and *acharya* of the temple, by the *samasta-prabhus* of Gurusamambe including Chamdimarasa, Ra[m]adeva and Kesavadeva. The grant is stated to have been made in the presence of Madhuvananayaka, the *heggade* of *Mahapradhana Kumara* Chamdugideva, *Mahaprabhu* Mallarasayya, etc.

28. Two CHALUKYA INSCRIPTIONS, SEDAM, DISTRICT GULBARGA.—These Kannada inscriptions belong to the reign of Bhulokamalla (Somesvara III). Both the records give the genealogy up to the ruling king starting with Taila II. The first record, dated in the king's regnal year 12, Pimgala (A.D. 1138) refers to the king as *Sarvajnachakravarti* and records grants of land, garden, money, betel-leaves, oil, etc., for the daily worship of

Adibhattaraka of Temkana-basadi in Sedimba and for the worship to be performed on the festive occasion like *Jivadayashthami, Namdisvarasamkramana, grahana,* etc., and for renovation by the *mahajanas* led by *Mahaprachamda-damdanayaka* Bhimarasa, son-in-law *(aliya)* of *Mahapradhana Hiriyadamdanayaka* Kalimayya. The second record, which is undated, extols the Jaina pontiff Prabhachamdradeva, and refers to the construction of Santina-thajinapa-geha by Barmmadeva and describes the heroism of the fifty-two heroes of Sedimba.

29. ALUPA CHARTER, BELMANNU, DISTRICT SOUTH KANARA.—This undated copper-plate inscription, in archaic Kannada language and Telugu Kannada script of the eighth century A.D., belongs to the reign of Aluvarasa II (*c.* A.D. 730-60) and records that the privileges *(mariyadi)* enjoyed by Sivavalli were granted also to the *sabha* of Belmannu by the ruler and Ereyapparasa on the occasion of a lunar eclipse. Towards the end of the record endurance is invoked upon the grants made by the rulers of the Pandyakula, obviously owing to the fact that the Alupas claimed to be of Pandya extraction. The seal bears the figures of two fish and it is already known that the Alupas, like the Pandyas, were endowed with the *mina-lanchchhana.*

30. ALUPA INSCRIPTIONS, UDIYAVARA DISTRICT SOUTH KANARA.—Four recently discovered undated stone inscriptions, originally from Udiyavara and now kept in the Milagres College, Kallianpur, District South Kanara, are written in Kannada language and Telugu-Kannada script of the eighth-ninth century A.D. TWO among these are hero-stone inscriptions, one of them recording the setting up of the memorial stone by Sarvva-podi, the younger sister of Singapuli who died fighting in a battle which ensued his master Svetavahana's forced entry into Odayapura. The other hero-stone inscription, the initial portion of which is lost, states that the memorial stone was set up by Jogi, the younger sister of the deceased hero (name lost) who fell fighting at the time of Svetavahana's forced entry into Udayapura.

The third inscription states that the title of *Pandyanayga* was conferred on Nagadatta at Mangalapura while Srimara was ruling over Kodala during the administration of Killa-Milalarasa while Chitravahana-Alupendra was the king.

The fourth inscription, which is damaged and broken, refers to some arrangement *(vyavaste)* made in regard to the tenancy of cultiviable lands while Arakella was the head-man of the district.

31. COPPER PLATE CHARTERS, UPPUNDA, DISTRICT SOUTH KANARA.—Eight copper plates with inscriptions in Kannada language and characters from Durgaparamesvari temple, Uppunda, record different grants of land to the local pontiffs. Of the two inscrip tions which belong to the Vijayanagara kings, the first one dated in Saka 1451 (A.D. 1529) refers itself to the reign of Krishnadevaraya and records the grant of land to Ramachandra-tirttha-Sripadamgalu, the disciple of Narasimhatirtha-Sripadamgalu of Uppugunda by *Mahamandalesvara* Padumaladevi-amma who is stated to have been governing Nagire, Haiva, Tulu and Komkana from the capital Honnavara. The second inscription, dated in Saka 1463 (A.D. 1541) and belonging to the reign of Achyutaraya, records the grant of land to the same pontiff by *Mahamandalesvara* Devarasavodeya, son of Birusavanta Tolaha, administering over Haduvalli and Bhattakala from the capital Samgitapura.

Another inscription which forms the first part of the third copper-plate, dated in Saka 1461 (A.D. 1539), records another grant of land to the same pontiff by the same chief

mentioned in the record of Achyutaraya. The latter part of the inscription just mentioned, and four more copper-plates bearing inscriptions with dates ranging between Saka 1476 (A.D. 1554) and Saka 1486 (A.D. 1564), record different grants of land to the same pontiff by the chief *Mahamandalesvara* Channa-Bhairadevi-amma, the daughter of *Mahamandales*-parfi-Bhairadevi-amma, ruling over the Haduvalli and Bhattakala regions from Samgita-pura. The last one, dated in Saka 1438 (A.D. 1516) records the grant of land to the pontiff Narasimhatirttha-Sripadamgalu, the disciple of Paramanandatirttha-Sripadamgalu by Nagura Anesala Hebbara, Amna Hebbara and the Hundred-and-one *Jagattu.*

RAJASTHAN

32. MEMORIAL INSCRIPTION, NAGADRI, MANDORE GARDEN, DISTRICT JODHPUR.—This inscription is dated Vikrama 1195 (A.D. 1138).

33. CHAHAMANA INSCRIPTION, PALI, DISTRICT SIROHI.—This inscription is dated Vikrama 1237 (A.D. 1180) and belongs to the Chahamana king Kalhana of Nadol and mentions the local chief *Maharaja* Somasimha.

TAMIL NADU

34. HOYSALA INSCRIPTIONS, MADAGONDAPALLI, DISTRICT DHARMAPURI.—A Tamil inscription, engraved on the south wall of the Arkesvara temple, dated in Saka 1218 (A.D. 1296) in the third regnal year of Viravisvanatha, records the gift of the village Kudaimalam for specified services to god Tiru Angalusvaram-udaiya-nayanar of Kamindanpalli for the welfare and victory of the king. Another Tamil inscription, engraved on the tiers of the Arkesvara temple and dated Saka 1222 (A.D. 1300) during the reign of Ballala III, records the grant of Karkundasam in Murasu-nadu as *sarvamanya* to the goddess Nachchiyar Sivan Perundevi Nachchiyar, the consort of Angisvaramudaiyar in Mattakamundanpalli by *Mahapradhanam* Koyil Mudaliyar for the welfare and victory of Vallaladevar (Ballala III).

35. INSCRIPTION, MADAGONDAPALLI, DISTRICT DHARMAPURI.—An undated inscrip tion in Tamil language and Grantha and Tamil characters of about the fifteenth century, engraved on the south wall of the Arkesvara temple, commences with a verse in praise of Visvakarman and refers to the assignment of the income from taxes such as *inavari* and *virakodivari* as *sarvamanya* to god Angisvaram-udaiyar by *Virapanchalattar* of Periya-nadu.

36. INSCRIPTION, KARUNGALIPPADIPATTI, DISTRICT NORTH ARCOT.—This inscription on a hero-stone in Tamil language and script is dated in the tenth year in the reign of Priti Gangaraiyar Atiyai Iraman and records the death of Nigamaka Tenpalaiyan of Melai Karungalipaddi in Ten-Venadu.

37. INSCRIPTION, KOTTAIYUR, DISTRICT NORTH ARCOT.—This inscription, on a hero-stone in Vatteluttu characters of about the fifth century A.D., is dated in the twenty-first year in the reign of Somasi-Ko-Tirumaran. It records the death of Kudavasttan, a servant of Malaiadi[a]raisaru in battle with the chief of Perupuliur in Mikonrai-nadu *(contra; Chengam Nadukarkal,* No. 1971/62,).

38. CHOLA INSCRIPTIONS, TAMARAIPPAKKAM, DISTRICT NORTH ARCOT.—Two Tamil inscriptions in Tamil script, both dated in the tenth year in the reign of Kulottunga record the death of two persons along with Devar *alias* Prithigangar and grant of lands to their families.

39. TWO INSCRIPTIONS, DISTRICT NORTH ARCOT.—One of these two Tamil inscrip tions on a hero-stone at Kadaladi in Vatteluttu characters is dated in the eleventh regnal year of Mandapurumar. It records the death of Vijaya-Korradaiyar, a soldier of Siri Gangaraisar, when the latter invaded Sangamangalam with Kongani Araisar. The other from Mel Punjai records the death of another soldier on the same occasion.

40. PALLAVA HERO-STONE INSCRIPTIONS, DISTRICT NORTH ARCOT.—These inscrip tions copied from the Chengam Taluk are all engraved in Vatteluttu characters. The earliest among these inscriptions copied from Padi Agraharam belongs to Simhavishnu in whose thirty-thrid regnal year it is dated. It records the death of the son of Kandavarman Enadiyar. Three inscriptions of Mahendravarman copied from Torappadi, Edattanur and Kudalur (pl.LXVII B) are dated respectively in the first, fifty-fourth and fifty-eighth regnal years. The inscription from Torappadi records the death of Kunrakkanniyar, a servant of Gangarasar, when Perumugai was attacked. The inscription from Edattanur records the death of Karundevakkatti in the buffalo-shed. It also records the vigilance of Koravan, a dog, which bit a robber. The third from Kudalur records the death of Kaklandi Annavan in the course of a cattle raid at Kudal by Kandavinnanar, the son-in-law of Venako-Araisar. An inscription from Torappadi, in characters of about the seventh century, dated in the twelfth year in the reign of Narasimhavarman I, records the death of Korravindar-Kunranar, a servant of Sri Gangaraisar while the latter attacked the son of Konganiaraisar. An inscription from Tandrampattu, in characters of about the eighth century A.D. and dated in the seventh year of the reign of Narasimhavarman, records the death of Marudakalan, son of Eruma[nda]nar while Merkovalur was attacked by Vanako-Puttaraisar. An inscription from Mallikapuram near Sattanur, in characters of about the eighth century and dated in the fiftieth year in the reign of Narasimhavarman II, records the death of Kumaramangalavundan, a servant of Pagaimati, in the course of a cattle raid on Sattanur. A damaged inscription from Melpallippattu, dated in the ninth year in the reign of Paramesvaravarman I, records the death of a hero in the course of a cattle raid by Koilpattar of Kovur-nadu. An inscription from Kilvandavadi (pi. LXVII A), dated in the forty-fourth year in the reign of Nandisvara-vikramavarman, records the death of Venarkkaliyan on behalf of Vanaperumanar when Iramandaipadi was attacked by Perumanar. (For difference in the readings of some of these inscriptions under Nos. 39, 40 and 41, especially about the regnal years, see *Chengam, Nadukarkal* published by the Department of Archaeology, Tamil Nadu.)

41. LATER PALLAVA INSCRIPTIONS, DISTRICT NORTH ARCOT.—These inscriptions on hero-stones are in Tamil characters of the ninth century A.D. One of them, from Chinniyampettai is dated in the third year in the reign of Kampavarman. It records the death of Karipperuman, son of Chembattondan, a servant of Vairamegha-Vanako-varaiyar when the buffaloes of Pasarrur were captured by Eyinattar. Two more inscriptions from Viranam, dated in the fourteenth year of the same king, record the death of heroes when Sattanur was attacked by Madevar of Pengala-nadu when Viranam and Sattanur

were being ruled by Akkalimallanar, son of Nandiperumanar who was ruling over Venadu-300 and Meinadu-500 as a feudatory of Vanakovaraiyar-Vairameghanar.

42. CHOLA INSCRIPTIONS, DISTRICT NORTH ARCOT.—A Tamil inscription copied from Iraiyur and dated in the thirtieth year in the reign of Madiraikonda Parakesari (Parantaka I) records the grant of land by Vettuvan Elunurruvan to the temple *(ambalam)* of Valaiyuradigal. It also records the grant of land by his daughter Gunapperumal. Another inscription from Aittappaliyam, in characters of the tenth century A.D., is dated in the fourth year in the reign of Parakesarivarman and records the death of Medayan of Alavippadi after rescuing the cattle while Vanakovaraiyar-Vettuvadiaraiyar was ruling. Another inscription from Mallikapur, in characters of about the tenth century and dated in the fourth year of Parakesarivarman, records the death of Kalian Talan of Anaimangalam after rescuing the cattle of Alavippadi while Vettuvadiaraiyar Vanakovaraiyar was ruling.

43. MARATHA INSCRIPTION, THANJAVUR.—Engraved on the copper *sikhara* on the *vimana* of the Brihadisvara temple, this inscription is in three versions, viz. Tamil, in Tamil script, Sanskrit, in Grantha, and Marathi in Nagari. Dated Saka 1765 (A.D. 1843), it records the consecration of the *sikhara, ashtabandhana* and *kumbhabhisheka* by Sivaji, the reigning king. It also refers to the precious consecration in Saka 1651 (A.D. 1729) during the reign of Sarabhoji-maharaja of Thanjavur.

44. KALASA INSCRIPTION, THANJAVUR.—This inscription, engraved on the *kalasa* of the Brihadisvara temple, in late Tamil characters, records the fixing of the *pancha-loha-kalasa* by Siva Perumal Kottan.

UTTAR PRADESH

45. CLAY SEALING INSCRIPTIONS, KAUSAMBI, DISTRICT ALLAHABAD.—Of the two inscriptions, ascribable to about 100 B.C., one reads N*andisenasa* and the other *Satamita.*

46. LABEL INSCRIPTIONS, KALANJAR, DISTRICT BANDA.—Several inscriptions engraved, in Nagari characters of about the twelfth century and Sanskrit language, below the human figures carved out in the stone slabs built into the wall of the Nilakantha temple, were discovered. One of them mentions *Thakkura sri* Samkaragana, while two others refer respectively to *Pamdita sri* Bhuvana and *Mahamahattaka Thakkura sri* Vatsaraja. Some other names like *Thakura sri* Ka[va]ra, *Thakkura sri* Udharana, *Thakkura sri* Pahula and *Thakkura sri* Isvara are found. Names of two princes named *Rajaputra sri* Kula and *Rajaputra sri* [Ni] ka are also found. A certain Vachharaja styled as *Rauta* is mentioned in a label.

47. BUNDELA COPPER-PLATE CHARTER, KALANJAR, DISTRICT BANDA.----Dated Vikrama 1803 (A.D. 1746-47), this charter, in Nagari characters and local dialect, refers to the reign of Chhatrasal, the famous Bundela ruler. Mentioning the *Diwan* (i.e. minister) *Maharajakumara* Amanasingh, it records the grant of the village Pahari to the priests of Li(Ni)lakantha.

48. IMAGE INSCRIPTIONS, MADANPUR, DISTRICT JHANSI.—Inscriptions in Nagari characters and Sanskrit language on the pedestal of four stone images of *Jaina Tirthankaras*

were discovered. They are damaged. All of them are dated Vikrama 1692 (A.D. 1634). From the *lanchhanas* carved above the inscriptions on three of the four images, it is known that one of the images represents Aranatha, the other represents Chandraprabha and the third represents Sambhavanatha. The legible portions of the inscriptions refer to Kumda-kumdacharya *anvqya,* Sarasvati *gachchha,* Balatkara *gana* and Mula *samgha.*

49. PALA CHARTER,LUCKNOW..—The charter in Sanskrit language and Nagari characters, preserved in the State Museum, Lucknow, is dated in the third year in the reign of Surapala I. It records the grant, made by the king from his camp at Mudgagiri, of two villages Angaragartika and Vasantika to god Mahatesvara of Varanasi, and the grant of villages Kulaputraka and Navallika to the Saivacharya-parshat hereditarily, at the instance of Mahata-bhattarika, the queen of Devapala, the father of the ruling king.

50. CLAY SEALING INSCRIPTIONS, MATHURA.—One clay sealing bears the inscription *Bhanubhutisa* in Brahmi characters of the second century B.C. The second one in Brahmi characters of the first-second centuries A.D., reads *Dhruvamitrasa.* The third one, in similar characters, reads *sri Seshadeva.*

NEIGHBOURING COUNTRIES

51. IMAGE INSCRIPTION, KANDAHAR, AFGHANISTAN.—This inscription on the pedestal of a stone image of Uma-Mahesvara is in Sanskrit language and in late Brahmi characters of about the sixth century A.D. It contains a verse in *anushtubh* metre in praise of Siva describ ing him as the very embodiment of the three gods i.e. Brahma, Vishnu and Mahesvara, performing the triple roles as the creator, protector and destroyer.

52. VISHNU IMAGE INSCRIPTION, DACCA, BANGLADESH.—Engraved in characters of about the tenth century, this Sanskrit inscription on the pedestal of a Vishnu image seems to speak of the image of Narayana, set up by a person called Sridhara, son of one Isana.

ARABIC AND PERSIAN INSCRIPTIONS[1]

GUJARAT

1 MISCELLANEOUS INSCRIPTIONS, DISTRICTS AHMADABAD, JUNAGADH AND VADODARA.—A fragmentary inscription, from Vadodara, states that Amir Tahir (whose father's name is lost) a nephew of Sultan Mahmud of Ghazna, lost his life along with eleven other persons while fighting non-believers in the vicinity of the Tank of Mehsyana (?) situated to the north (of the place where the whole group was buried); it is assignable on palaeographic

[1] Dr. Z.A. Desai, Superintending Epigraphist for Arabic and Persian Inscriptions of the Survey, assisted by Shri A.A. Kadiri, Senior Epigraphical Assistant, Sarvashri M.F. Khan and S.S. Husain, Epigraphical Assistants, found, copied, examined and reported on about two hundred and fifteen inscriptions during the year. Of these the important ones are reported here.

grounds to not later than the fourteenth century. Another record, from Prabhas Patan, District Junagadh, is too damaged to yield any information except the date 24 Safar A.H. 826 (6th February, A.D. 1423). A known, damaged record from the same place, was, on re-examination, found to record the construction of the mosque of His Holiness, the martyr Mahmud, son of the martyr Sayyid Ja'far, by Malik Chainladh, son of Malik Ghadanfar in A.H. 900 (A.D. 1694). A record, from Pirana, District Ahmadabad, records the construction of the tomb of Sayyid Nur Muhammad in A.H. 1039 (A.D. 1629-30).

HARYANA

2. INSCRIPTIONS OF THE LODIS, DISTRICT HISSAR.—A published record of Sikandar Shah, from Hansi, inscribed by Radi Qutb, the deputy Qadi of Hansi, recording the construction of a mosque to the south of the grave of Shaikh Jamalu'd-Din by Aba Bakr Bam Jilwani, a disciple of Shaikh Abu'1-Fath, in A.H. 896 (A.D. 1491), at the time of the investiture as Sajjada of Shaikh Farid, was, on re-examination found to mention Dharman, the Prefect, a servant of the builder, as the sepervisor of the work and Ladhan, son of Jalal Nagauri as the mason. Another known epigraph from the same place, belong ing to the reign of Ibrahim Shah, records that a gate was constructed for and repairs were carried out to the fort originally built by Alau'd-Din Khalji in A.H. 928 (A.D. 1522), during the governorship of Masnad-i-'Ali Hamid Khan, son of Mahabat Khan (son of ?) Kamal and during the shiqdari of Khwaja Fath Muhammad and at the instance of Malik (?) Kamal, son of Bakhtyar; it was inscribed by Chainladh (?), son of Nasir, the Mufti of Hansi.

3. MISCELLANEOUS INSCRIPTIONS, DISTRICTS HISSAR AND KARNAL.—A new but un fortunately fragmentary record, from Thanesar, District Karnal, which seems to contain parts of royal titles, is assignable on palaeographical grounds to the thirteenth century and may have been a Mumluk record. Another damaged and fragmentary epigraph, from the same place, executed in the same characters, contains religious texts and a few titles of (a nobleman), and may have formed part of the record just mentioned. Re-examination of a known record, from Hissar, showed that the date of" the construction of a tomb and a garden constructed by Aba, son of Yazid, was A.H. 974 (A.D. 1566-67) and not A.H. 975 (A.D. 1567-68). Two records mentioning Col. James Skinner, an officer of the East India Company were found at Hansi. One, dated A.H. 1240 (A.D. 1824-25), records the construction of a wall by Muhammad Shadhil Khan Afghan, a servant of the Colonel, and resident of Bara Basti, stated to have been situated on the banks of the Ganges in Pargana Farid Astana, Dapoth and Garh Muktesar. The other records the death of Anwar Mahal Khatun, wife of the Colonel, which took place in A.H. 1284 (A.D. 1867).

4. INSCRIPTIONS OF THE MUGHALS, DISTRICTS HISSAR AND ROHTAK.—A known epigraph of Akbar, from Rohtak, on re-examination, reveals that a mosque and not the tomb of Mast Khan was constructed in A.H. 966 (A.D. 1558-59); it was written by Sultan Muhammad Samarqandi. A damaged record of Akbar, from Barwala, District Hissar, records the construction of a well by Malan, son of Kakan (?) at a cost of 31000 *Tankas.* An inscription of Shah Jahan, from Rohtak, a known record, on re-examination reveals that the supervisor of a building constructed in A.H. 1044 (A.D. 1634) was not Pir Khan, but Mir Khan, son of Sher Khan Sarwani. Another known but damaged record of Shah

Jahan, from Hansi, reveals on re-examination that the well, constructed in A.H. 1059 (A.D. 1649), belonged to Nand Ram. Yet another known record, from the same place, executed in extremely elegant Nasta'liq script, was found to yield, on re-examination, the full name of the inscriber as Abdu'r-Rasul', son of 'Abdu'llah; it was set up in Aurangzeb's time in A.H. 1098 (A.D. 1686-87). A new but damaged record of Aurangzeb, from Moham, District Rohtak, assigns the construction of a gate to Ahmad Yar Khan in his forty-fourth regnal year, A.H. 1111 (A.D. 1700).

MADHYA PRADESH

5. INSCRIPTIONS OF THE KHALJIS OF MALWA, DISTRICT DHAR.—A metrical epigraph of Mahmud Shah I, from Dhar, recording the construction of various parts of the building-complex in the enclosure of the tomb of the saint Kamal, by the orders of the king in A.H. 861 (A.D. 1456-57) has, on re-examination, yielded the name of the calligrapher, as Habib Al-Hafiz a 'sh-Shirazi al-Murshidi and the father's name of the composer Mahmud as Rukn. Another known record, from Mandu, dated A.H. 914 (A.D. 1508-09), has been found, on re-examination, to be a record of Nasir Shah. Re-examination of one more record, a bilingual one, from the same place, has resulted in its complete decipherment and proved it to be another record of the same king. It enjoins upon officials like the Prefect, the Khot, the Patwari, and the subjects of the town of Tarapur in the Satasi division in the environs of (the capital) Shadiabad (i.e. Mandu) to note that the grant of twenty *bighas* of land for digging a well and laying out a garden therein originally made in A.H. 887 (A.D. 1482-83) in favour of the descendants of Gopal, son of Paras, the greengrocer, was confirmed.

6. INSCRIPTIONS OF THE MUGHALS, DISTRICTS DHAR AND VIDISHA.—A known epigraph of Akbar from Mandu, published earlier, recording the construction of the building called "Dilkusha" was found to bear the year A.H. 987 (A.D. 1579-80) and the full name of the calligrapher as Faridun Hussain, son of Hatimi at-Hirawi. A record of Shah Jahan, from Tal, District Vidisha, records the construction of a mosque in A.H. 1054 (A.D. 1644-45) by Muhammad Safa in Pargana Tal (?) during the time (governorship of) Nawwab Safdar Khan when Mirza Muhammad Mu'min was the Faujdar. A record of Aurangzeb, from Parasri, in the same District, records the construction of a mosque in his thirty-eighth regnal year, A.H. 1106 (A.D. 1694-95). A record of Farrukh Siyar from Iklod, in the same District, is dated in his third regnal year i.e. A.H. 1126 (A.D. 1714).

7. MISCELLANEOUS INSCRIPTIONS, DISTRICTS DHAR, EAST NIMAR, RATLAM AND WEST NIMAR.—A record from Barauda, District Ratlam, records the construction of a mosque in the town of Barauda by Sha'ban Hamid, a servant of Khan-i-A'zam Mubarak Khan, son of Qiwam Khan, between A.H. 856-60 (A.D. 1452-56), it also mentions Farid, son of Farid Muhammad, probably as a scribe or the supervisor of the work. In an epigraph, from Baidia, District West Nimar, the order for the construction of a mosque is stated to have been given by Muqarrab Khan Sultani to his trusted servant Bakhtyar, it was written by Nasir, son of Mughith al-Qari in A.H. 861 (A.D. 1456-57). A damaged record, from Jhiri, District East Nimar, records the construction of a mosque by Jamalu'd Din Muhammad, on the 8th Jumada I A.H. 989 (10th June, A.D. 1581). One more record written by Khalf a't-Tabrizi, who appears to be a calligrapher of merit, in A.H. 1017 (A.D. 1608-09), was found at Burhanpur in the same District. An epigraph from the same place records the death

of Mir'Abdu'l-Malik Husaini Arqandi, who is stated to have belonged to a noble Sayyid family of Khurasan, and died in the beginning of A.H. 1018 (A.D. 1609). Another epitaph from the same place records that Mir Ali Baig, son of Sha'ban Baig Zangana died in A.H. 1018 (A.D. 1609), and his grave was constructed by his sister Zainab Agha and her husband Balu Agha Zangana. Another epigraph, from the same place, refers to the construction of a mosque by Yar Husain Bahsudi, son of Muhammad Baig, in A.H. 1027 (A.D. 1617-18). The date of a published damaged epigraph from Mandu, referring to the governorship of Mirza Muhammad, son of Mirza Badi'u'z-Zaman Mashhadi, under supervision of Muhammad Husain Mashhadi, was deciphered as A.H. 1063 (?) (A.D. 1653). An epitaph from Burhanpur records that Mirza Muhammad Husain, son of Haji Mirza Baig, died while he was reciting Qur'an in the evening prayers on the 7th Jumada I 1091 (26th May, A.D. 1680). Another epitaph from the same place states that Mir Zahiru'd-Din Muhammad, a Saifi and Husaini Sayyid, died at the age of thirty in A.H. 1091 (A.D. 1680). One more epitaph from Burhanpur records the death of Sayyid Chand, Sadat-i-Bariha and a resident of Kethora, in A.H. 1112 (A.D. 1700-01). Another record from the same place, assigns the excavation of a well to Baghmal in A.H. 1123 (A.D. 1711-12).

PUNJAB

8. INSCRIPTIONS OF THE MUGHALS, DISTRICTS GURDASPUR AND PATIALA.—A published epigraph of Akbar from Batala, District Gurdaspur, records the construction of a reservoir, a mosque and a garden in A.H. 997-98 (A.D. 1589-90) by Shamshir Khan Rajput, a resident of *pargana* Nasrabad, in *sarkar* Manikpur; remarkable for its fine Thulth calligraphy; it was written by Ustad Ahmad, son of Zakariyya. The date of construction of a mosque by Mirza Momin in a noticed record of Jahangir from Samana, District Patiala, has been found to be A.H. 1024 (A.D. 1615-16) and not A.H. 1014.

9. MISCELLANEOUS INSCRIPTIONS, DISTRICT PATIALA.—An epigraph from Samana records the construction of a pleasure-house *(Tarab-Khana)* by Daulat Khan, under the supervision of Gopal Bhatt, the work having been executed by Ishaq in A.H. 1044 (A.D. 1634), regnal year 6 *(sic.)* of Shah Jahan.

UTTAR PRADESH

10. INSCRIPTIONS OF THE MUGHALS, DISTRICTS AZAMGARH AND VARANASI.—A damaged published record of Humayun from Qasba, District Azamgarh, has on re-examination yielded more information; it assigns the construction of a mosque in A.H. 940 (A.D. 1533-34) to 'Ata Quli, son of Dust Quli Kabuli, during the governorship (?) of Amir Nizamu'd-Din Tardi Baig and further states that Husain, son of Yar 'Ali, who was incharge of the construction, spent four thousand Baburi *Tankas,* constructed the large well on the south and also built a guest house on the north of Jami mosque having spent five hundred *Tankas* from his own pocket. A published epigraph of Akbar, from Sarnath, District Varanasi, states that Gobardhan, a house-born slave of the emperor, constructed in A.H. 996 (A.D. 1587-88) a domed building (on the Chaukhandi *stupa)* at the place where the late emperor (i.e. Humayun), in the course of his visit to the place, had sat on the throne. A record of Jahangir from Varanasi, records the construction of a mosque which 'was

responsible for the currency of Islam in Banaras', by Salih, in A.H. 1027 (A.D. 1617-18); it was composed by Tahir and written by 'Abdu'sh-Shakur, son of 'Abdu'r-Rahim, Raushan-Qalam (Lit. Bright-Pen). A damaged record of the time of Shah Jahan, from the same place, informs that 'Abdu'l-Latif under orders of Nawwab Qilich Khan, carried out the work of white-washing of the mosques of Banaras through Muhammad Mirak (?) in A.H. 1040 (A.D. 1630). Another record of Shah Jahan, also from Varanasi, records the construction of a mosque in Banaras to Muhammad Baqir in A.H. 1048 (A.D. 1638-39). Yet another damaged record of the same emperor, from Asia, District Varanasi, records the construction of some edifice during the governorship of Baqir Khan Najm-i-Thani, by Jamshid, son of Khwaja Qasim Quli Qazwini (?) and ends with an imprecation against Hindus and Muslims, who might seek to destory or damage the building; its date is lost. A record of Farrukh Siyar, from Varanasi, inscribed by Muhammad Zahid, assigns the construction of a mosque to Mah Ba'i (?) in A.H. 1125 (A.D. 1713-14). An epigraph from the same place of the time of Shah 'Alam II, states that Nasiru'd-Daula 'Ali Ibrahim Khan, the governor of Banaras, repaired (?) a mosque in A.H. 1198 (A.D. 1783-84), through the help of the Governor-General Mr. Hashtin (i.e. Hastings) Bahadur.

11. INSCRIPTION OF THE KHALJIS, DISTRICT VARANASI.—A fragmentary record of Qutb'd-Din Mubarak Khalji, found at Varanasi, contains a part of the date A.H. 7 [18] (A.D. 1318-19) and the name of the king; its fine calligraphy is similar to that of the Tughluq epigraphs of Bihar.

12. INSCRIPTION OF TUGHLUQS, DISTRICT VARANASI.—A new record of Firuz Tughluq, from Varanasi, assigns the construction of the mosque which took place in A.H. 765 (A.D. 1364) to Husain (son of) Sharaf Husaini, for the merit of Sher Khatun, daughter of Malik Nasiru'd-Din, the deceased.

13. INSCRIPTION OF THE EAST INDIA COMPANY, DISTRICT VARANASI.—An epigraph from the mosque mentioned above, (sl. no. 12) records that at the instance of the members of the Committee appointed by the Council, by orders of the Governor-General Bahadur, for the repairs and maintenance of buildings, roads and highways in the city of Banaras, the mosque which was in a dilapidated condition, was extensively repaired under the supervision of Mister James Prince (?) Bahadur, its courtyard with its polished stone-flooring, the stone-wall on the side of the Ganga, wide staircases, tall minarets and the lofty main gate, having been either repaired or constructed in the best possible manner.

14. MISCELLANEOUS INSCRIPTIONS, DISTRICT VARANASI.—An epigraph, from Varanasi, records the construction of a mosque by Muhammad Sharif in A.H. 1077 (A.D. 1666-67). It was composed by Yumni and written by Mirza Muhammad, son of Muhammad Sharif Sha'ista Khani. An undated record from the same place contains a Quatrain composed by the same Yumni. A number of epitaphs were found at Varanasi, a few of which are noticed here. One of these records the death which took place in A.H. 1175 (A.D. 1762) of Aqa Muhammad Taqi Bek, son of Muhammad Husain Bek, the deceased. Another, dated A.H. 1189 (A.D. 1775-76) records the death of Rahmat Khan. Another, dated A.H. 1211 (A.D. 1796-97), is an epitaph of Shamsu'd-Din, whose pen-name was Hunar. A bilingual epigraph recording the death, which occurred in A.H. 1265 (A.D. 1848), of Ustad Bakridan Khan, describes him as an expert in gymnastics, while another epigraph from the same place, also a bilingual one, states that the grave of the famous gymanstic expert was

constructed by one of his desciples Dula Gur Gosa'in in V.S. 1905 (A.D. 1849). An epitaph of a lady named Bibban, who is stated to have died young in A.H. 1289 (A.D. 1872) gives in eight different chronograms, the date of her demise, in eight eras, viz. Hijra, A.D., Jalali, Majusi, Wasli (Fasli ?), Bangla, Samvat and Yazdi. Another interesting epitaph states that Bibi Amiran, the maternal aunt of Dildar AH, son of Mir Kallu, a resident of Mahalla Shivala, constructed her grave in Shawwal A.H. 1280 (March-April A.D. 1864) in her lifetime and was, on her death, laid to rest there about a month later. A group of epitaphs found in the Bagh-i-Fatiman graveyard, said to be the necropolis of the scions of royal Mughal family of Delhi, who had settled at Varanasi, includes one, dated A.H. 1233 (A.D. 1817-18) recording the death of Khurram Bakht, another dated A.H. 1234 (A.D. 1858-59) recording the demise of Bulaqi Mirza.

WEST BENGAL

15. INSCRIPTIONS OF THE SULTANS OF BENGAL, DISTRICT HOOGHLY.—A published record of Barbak Shah from Tribeni, District Hooghly, is found on re-examination to be dated A.H. 864 (A.D. 1459) and not A.H. 860 (A.D. 1455), thus proving that there is no discrepancy in the date; it records the construction of a mosque by Ulugh Ajmal Khan, the Commander of Khan-i-Mu'azzam Iqrar Khan, the Sarnaubat-i-Ghairi-Mahalli and Sarlashkar and Wazir of the district of Sajla Sankhbad (and not Mankhbad) and city Laobala.

NUMISMATICS AND TREASURE-TROVE[1]

ANDHRA PRADESH

1. MISCELLANEOUS COINS, STATE MUSEUM, HYDERABAD.—The State Museum acquired five thousand four hundred forty-six coins, variously of gold, silver, copper and lead. Out of these coins, six copper coins were presented by Shri D. Kamayya, Deputy Secretary to Government and the rest came as treasure-troves.

2. SILVER COINS, WARANGAL.—A hoard of forty-five coins of Muhammad Shah was found within the fort of Warangal.

ASSAM

3. GOLD COINS, BORVITA, DISTRICT GOALPARA.—Five gold coins (**pi. LXVIII** A), resembling the post-Gupta coins of Eastern Bengal, were found in the village in course of earthwork.

GUJARAT

4. SCULPTURES AND ARCHITECTURAL PIECES, BHADRA, AHMADABAD.—While digging for the foundation for the Central Telegraph building, twenty-nine architectural pieces and sculptures were discovered. These include pillars, door-frames, ceiling-stones, images of Bhairava, Parvati, *nava-grahas* and several other Brahmanical deities and figures of *dvarapalas, vyalas* and others. The site also yielded a defaced inscribed stone slab dated Samvat 1274. Steps have been initiated to acquire all these finds under the Treasure Trove Act.

5. MUGHAL COINS, JAMALPUR, AHMADABAD.—Nineteen gold coins of the Mughal emperor Akbar (pi. LXIX A and B) were encountered near Kanch-ni-Masjid in the Jamalpur locality of Ahmadabad while constructing the compound-wall of the staff-

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[1] Information from: 1, Director, Archaeology and Museums, Andhra Pradesh; 2, Superintending - Archaeologist, South-eastern Circle, Archaeological Survey of India; 3, Superintending Archaeologist, Eastern Circle, Archaeological Survey of India; 4-8, Director of Archaeology, Gujarat State; 9 and 10, Director of Archaeology, Kerala State; 11, Director of Archaeology and Museums, Punjab; 12, 44 and 49, Professor K.D. Bajpai, Sagar University; 13-28, Director of Archives and Archaeology, Maharashtra; 30, Superinteding Archaeologist, Northern Circle, Archaeological Survey of India; 29 and 31-41, Director of Archaeology and Museums, Rajasthan; 42, Secretary, Education Department, Government of Tripura; 43 and 44, Director, State Museum, Lucknow; and 50 and 51 Director of Archaeology, West Bengal.

quarters of the Municipality. Round in shape, each of the coins is about 11 grams in weight. The obverse bears the name of the emperor 'Sultan Jalaluddin Akbar' and the date, and the reverse, the First creed and a verse from the Quran. The coins range in dates from A.H. 970 to 976. The coins are in the process of acquisition under the Treasure Trove Act.

6. BRAHMANICAL IMAGES, BORDI SAMADIYALA, DISTRICT RAJKOT.—Five images of Brahmanical gods and goddesses, unearthed in the village, are in the process of acquisition.

7. BRAHMANICAL IMAGES, HALVAD, DISTRICT SURENDRANAGAR.—Two images, one of Vishnu and the other of Kala-Bhairava, were found in course of digging for a pipe-line. They are being acquired under the Treasure-Trove Act.

8. JAINA IMAGES, WADHAVAN, DISTRICT SURENDRANAGAR.—Four Jaina images, encountered during digging for a drain, are in the process of acquisition under the Treasure Trove Act.

KERALA

9. MISCELLANEOUS OBJECTS, MULLASSERY, DISTRICT CHAWKAD.—The Trichur Archaeological Museum received a treasure-trove of bells, sheets, figures of cobras, devotees and others. The objects deposited within a vessel were found by Shri Papally while quarrying within his land.

10. BRONZE AND STONE OBJECTS, THODUPUZHA, DISTRICT IDIKKI.—The Site-Museum at Krishnapuram Palace received a large number of bronze and stone objects discovered from the ruined Annamalai temple. These finds include bronze images of Parvati, Lakshmi, Vishnu and Siva.

MADHYA PRADESH

11. COPPER COIN, SANCHI, DISTRICT RAISEN.—This interesting coin, instead of bearing the name of the ruler, bears the lengend *'Jitam Bhagavata Padmanabhena'* in the Gupta characters of the fourth century A.D. Professor K.D. Bajpai is of the opinion that the coin might have been issued by Chandragupta Vikramaditya in the name of his deity Vishnu after the conquest of Eastern Malwa.

MAHARASHTRA

12. MUGHAL COINS, KHAPRI, DISTRICT AKOLA—A treasure-trove of two silver issues, one each of Bahadur Shah and Muhammad Shah, was received by the Directorate of Archives and Archaeology, Government of Maharashtra.

13. SILVER COINS, ASHTA, DISTRICT BIR.—The Government of Maharashtra sanctioned the distribution of the treasure-trove of twelve silver coins.

14. MUGHAL COINS LONI GAVALI, DISTRICT BULDHANA.—The Directorate of Archives and Archaeology, Maharashtra, received ten Mughal copper coins found in the village.

15. SILVER COINS, BADGAON, DISTRICT CHANDRAPUR.—The Government of Maharashtra sanctioned the distribution of a treasure-trove consisting of thirty-five silver coins.

16. BAHMANI COINS, DINANADI, DISTRICT CHANDRAPUR.—A copper coin of Ahmed Shah II of the Bahamani dynasty was received by the Directorate of Archives and Archaeo logy, Maharashtra.

17. MUGHAL COIN, SHAGAON, DISTRICT JALGAON.—A silver issue of the Mughal emperor Aurangzeb was obtained by the Directorate of Archives and Archaeology, Maharashtra.

18. MUGHAL COINS, PATANSAUNGI, DISTRICT NAGPUR.—The treasure-trove of six gold coins and a gold ring received by the Directorate of Archieves and Archaeology, Maharashtra, include issues of Akbar, Aurangzeb, Shah Alam I and Muhammad Shah.

19. MISCELLANEOUS SILVER COINS, DONGAON B. K., DISTRICT NANDED.—The Directorate of Archives and Archaeology received a treasure-trove of one hundred and eighty-three silver coins including issues of Mughal emperors Aurangzeb, Shah Alam I and Muhammad Shah and Asafjah I of the Asaf Jahi dynasty.

20. GOLD COINS, BITALI, DISTRICT OSMANABAD.—Six gold coins of Jayadekamalla of the Eastern Chalukya dynasty were received by the Directorate of Archives and Archaeology, Maharashtra.

21. SATAVAHANA COIN, CHARTHANA, DISTRICT PARBHANI.—A lead coin of the Satavahana dynasty was acquired by the Directorate of Archives and Archaeology, Maharashtra.

22. MEDALS AND SEALS, SATARA.—The Directorate of Archives and Archaeology, Maharashtra, received from the District Magistrate, Satara, nine medals and five seals belonging to the former States of Aundh and Phaltan.

23. MARATHA COINS, SOPONDE, DISTRICT THANA.—Four copper coins of Chhatrapati Shivaji were received by the Directorate of Archives and Archaeology, Maharashtra.

24. SILVER COINS, TALSARI, DISTRICT THANA.—One hundred and eighty-four silver coins received by the Directorate of Archives and Archaeology, Maharashtra, include issues of Aurangzeb and Muhammad Shah.

25. BRITISH SILVER COINS, KOSERA, DISTRICT YEOTMAL.—Five hundred and ninety rupees of Queen Victoria, Edward VII and George V were received by the Directorate of Archives and Archaeology, Maharashtra.

26. BRITISH SILVER COINS, RUI, DISTRICT YEOTMAL.—A treasure-trove of two hundred ninety-nine rupees came into the possession of the Directorate of Archives and Archaeology, Maharashtra. This comprises issues of Queen Victoria, Edward VII and George V.

27. MUGHAL COINS.—The Directorate of Archives and Archaeology, Maharashtra, received five silver coins of the Mughal emperor Muhammad Shah. The exact provenance of the coins is yet to be determined.

PUNJAB

28. KUSHAN COINS, SUNET, DISTRICT LUDHIANA.—The Directorate of Archaeology and Museums, acquired a large number of Kushan copper coins from an inhabitant of Sunet who came across the finds while levelling his fields. It also purchased a good number of Kushan issues, also of copper, from the shopkeepers of the village.

RAJASTHAN

29. COINS, AGHAPUR AND NOH, DISTRICT BHARATPUR.—Four coins from the mounds were collected for the State Museum, Bharatpur.

30. MUGHAL COINS, BHARATPUR.—Sixty-two Mughal coins were found by a cultivator while digging his field. Nine of these coins are issues of Akbar. Minted variously at Lahore, Hazrat Delhi, Ahmadabad, Tatta and Urdu Zafar Qarin, these coins range in date from A.H. 979 to 1000. Four coins, ranging in date from A.H. 1010 to 1032 and minted at Lahore, Qandahar and Surat, are issues of Jahangir. To Shah Jahan belong as many as forty-eight coins, ranging in date from A.H. 1037 to 1068 and minted variously at Ahmadabad, Akbarabad, Akbarnagar, Allahabad, Burhanpur, Delhi, Jahangirnagar, Lahore, Multan, Patna, Shahjahanabad, Surat and Tatta. The remaining one coin, dated A.H. 1072 and minted at Ahmadabad, belongs to Aurangzeb.

31. INDO-SASSANIAN COINS, DALPURA, DISTRICT BHILWARA.—The Directorate of Archaeology and Museums, Rajasthan, acquired one hundred Indo-Sassanian coins from this village.

32. COPPER COIN, DHANNA RAM KI DHANI, DISTRICT GANGANAGAR.—The copper coin discovered here possibly is an issue of the Yaudheyas.

33. MISCELLANEOUS COINS, PALLU, DISTRICT GANGANAGAR.—This village yielded nine coins, three of which belong to Muhammed Shah Badshah Ghazi and two to Alaud-Din Khalji.

34. MISCELLANEOUS COINS, RANGMAHAL THERI, DISTRICT GANGANAGAR.—The ancient site produced two later Kushan coins and a single coin of Ajayadeva, besides an unidentifiable coin.

35. INDO-SASSANIAN COINS, AMARSAR, DISTRICT JAIPUR.—Five hundred and sixty-six coins were recovered from the village.

36. MISCELLANEOUS COINS, DAYARAMPURA, DISTRICT JAIPUR.—Two Indo-Sassanian coins and three coins of the 'Horseman-Bull' type were found in the village.

37 PUNCH-MARKED COINS, ISMAILPUR KI DOONGARI, JAIPUR.—Seventy-three silver punch-marked coins from the village were acquired by the Directorate of Archaeology which also received two copper Kushan coins presented by Shri M. L. Gupta, Superintendent, Archaeology and Museums, Jaipur.

38. MISCELLANEOUS COINS, AJITGARH, DISTRICT SIKAR-.-The village yielded sixty-one coins, out of which twenty-one belong to Edward VII, thirty-nine to George V and the remaining one to the Jodhpur State.

39. COPPER AND SILVER COINS, GIRWAR, DISTRICT SIROHI.—Eight hundred and fourteen copper coins and a single silver coin, found in the village, were acquired for the Sardar Museum, Jodhpur.

40. COINS, RAIRH, DISTRICT TONK.—One Malwa coin and one Mitra coin were recovered from the village.

41. MISCELLANEOUS COINS, PRATAP MUSEUM, UDAIPUR.—One hundred forty-six coins from Amet Road were acquired under the Treasure-Trove Act for the Museum. Nineteen of them are silver rupees of the (Chitrakoota) Udaipur 'Dosti-Landhan' type and bear the year v.s. 1985.

TRIPURA

42 MISCELLANEOUS COINS, TRIPURA MUSEUM.—Twenty-five silver coins of Tripura, Cooch Bihar, Arakan and the Bengal Sultanate were acquired.

UTTAR PRADESH

43 MISCELLANEOUS COINS, DISTRICT ALLAHABAD— Four hoards of coins, acquired under the Treasure-Trove Act, were deposited in the State Museum at Lucknow for examination and disposal under the Treasure-Trove Rules. Received through the Sadar Treasury, one of these hoards contains nine coins of the Delhi Sultans and the Mughals, four being of gold. The second hoard recovered from Tahsil Handia consists of five silver coins of the Mughal rulers. The third hoard from V.Mubarakpur contains eighty-six British coins, eighty-five of them being of silver. One hundred and ninety-five silver British issues were from the fourth hoard.

44. PANCHALA COINS, AHICHCHHATRA, DISTRICT BARELI--Of the two copper coins, found here, one, with a small figure, bears the name of Visvamitra m characters of the second half of the second century B.C. The other, an issue of Satyamitra, presents a bull on the reverse. It is ascribable to the second century A.D.

45. MUGHAL AND BRITISH COINS, DISTRICT BASTI.—The State Museum Lucknow, received two treasure-troves from this District for examination and disposal. One of these two hoards was discovered at V. Chaukaniya (P. S. Domariaganj) contains one hundred

and seven silver coins of the Mughal rulers. The other, received from Tahsil Navgadh, comprises sixty-nine silver coins of the British rulers.

46. INDO-SASSANIAN AND BRITISH COINS, V. SAIDPUR, DISTRICT BADAUN.—A treasure-trove of eight silver Indo-Sassanian coins and British rupees were received by the State Museum, Lucknow.

47. PUNCH-MARKED COINS, V. PARSA DAYA RAM, DISTRICT GORAKHPUR.—One hundred and sixty-seven silver punch-marked coins were acquired under the Treasure-Trove Act. They are under examination by the State Museum, Lucknow.

48. MISCELLANEOUS SILVER COINS, DISTRICT JHANSI.—The State Museum, Lucknow, received three treasure-troves for examination and disposal' under the Treasure-Trove Rules. Two of these hoards hail from Tahsil Lalitpur; one of them consists of one hundred and one silver issues of the Mughal rulers, while the other contains one hundred and eight coins, also of silver, of the Delhi Sultans. The third hoard discovered at V. Balabahet, comprises twenty-five rupees of Queen Victoria.

49. YAUDHEYA COINS, DISTRICT MEERUT.—Three of these coins bear the figure of a peacock instead of a cock. The legend on seven coins is *Yaudheya*(in place of the usual Y*odheya) ganasya jaya.*

WEST BENGAL

50. GOLD COINS, ELAHIGUNJ, DISTRICT MURSHIDABAD.—A hoard of sixty-three coins, struck in the name of Shah Alam II by the East India Company, was acquired by the State Archaeological Gallery, West Bengal. Dated A.H. 1202, these gold coins are of the Murshidabad mint. The Persian legend on the coins were deciphered by Dr. Chinmoy Dutta, Lecturer, Calcutta University.

51. GUPTA COINS, LAKSHMI HATIR DANGA, DISTRICT MURSHIDABAD.—Two gold coins of Narasimhagupta Baladitya (pi. LXVIII B and C) were acquired by the State Archaeological Gallery. Both the coins are of the Archer Type; one of them preserving the legend *Balądityah* on the reverse. The coins weigh 150.15 and 148.76 grains respectively. Their gold contents are 42 and 45 per cent respectively.

IV. OTHER IMPORTANT DISCOVERIES

ANDHRA PRADESH

1. CHALUKYAN TEMPLES, TALUK GIDDALUR, DISTRICT PRAKASAM.—Shri B. Rajarao of the Survey discovered Chalukyan temples at Ayyavaripalli, Donakonda and Giddalur.

DELHI

2. PAINTED GREY WARE, TIMARPUR, DELHI.—Shri B. M. Pande of the Survey discovered sherds of Painted Grey Ware from a mound on the right bank of the Yamuna near the Wazirabad Barrage, Timarpur.

GUJARAT

3. MEDIEVAL SCULPTURES, PANAR, DISTRICT AHMADABAD.—Shri N. M. Ganam of the Survey identified several medieval sculptures representing Matrikas, Uma-Mahesvara, Seshasayi Vishnu, Surya and a fine image of Revanta, within the enclosure of the modern Mahadeva temple.

4. BUDDHIST STUPA, HADAMATIYA, DISTRICT JUNAGADH.—Prof. H. D. Sankalia of the Deccan College Post-graduate and Research Institute Pune, Shri Shambhuprasad Desai and Shri Banesanghaji of the Department of Archaeology, Gujarat, discovered remains of a Buddhist *stupa* near village Hadamatiya in Taluka Talala (Gir). The *stupa,* locally known as Vajir Panata no Kotho, is located on the bank of the river Sarasvati,. near Jai Farm of Shri Banesanghaji. Its outer portion is made of well-burnt bricks, parts of which have been robbed. The inner portion of the *stupa* is filled up with undressed stones, brick-bats, etc., and is datable to the beginning of the Christian era.

5. MEDIEVAL SCULPTURES, MOTA, DISTRICT SURAT.—Shri N. M. Ganam of the Survey found medieval sculptures of four-faced Brahma, Sarasvati and Savitri in white marble, in the precincts of a modern temple.

HARYANA

6. PAINTED GREY WARE, THAL, DISTRICT KARNAL.—During the course of his exploration, Shri H. K. Narain of the Survey, discovered a Painted Grey Ware site at the village Thai in Tahsil Thanesar. The site was found to have remained under occupation from Painted Grey Ware times to the late Medieval period.

JAMMU AND KASHIMIR

7. STONE INSCRIPTION, MASRUR (BARABHAI), DISTRICT KATHUA.—A stone inscrip tion in Arabic characters (pi. LXX A) was noticed near the Ziarat of Shah Abdullah

Sahib in the village Masrur (Barabhai) in Sakargarh Tahsil by Shri L. K. Srinivasan of the Survey. The inscription records the digging of a well in the month of Rajab 1096 (Hijri) corresponding to the twenty-eighth year of the reign of the Mughal emperor Aurangzeb.

8. MEDIEVAL TEMPLE, BAILI, DISTRICT UDHAMPUR.—A medieval temple in a partly-ruined condition, closely resembling in constructional details and plan the temples at Kiramchi and ascribable to the tenth-eleventh century, was noticed near the village Baili, about six kilometres north-west of Udhampur by Sarvashri Sardari Lai and Puran Singh of the Survey.

KERALA

9. SCULPTURES AND MURALS, WOOD CARVINGS AND BRONZES, TALUK ENAD, DISTRICT MALAPPURAM.—Shri Chandrasekhara Menon of the Survey noticed medieval sculptures in the temples at Chengottur, Kuttakkal, Manjeri, Morayur, Nerukara, Purpatta and Tiruvali. He also noticed murals in the Siva temple at Nerukara and wood-carvings of Siva, Vishnu, Brahma, Narasimha, *dikpalas* and sixteen bracket-figures at Kottakkal and Trikkalangode. At Chengottur, he found bronze images of Kaliya Krishna, Varaha and Vishnu in private possession.

MADHYA PRADESH

10. MEDIEVAL SCULPTURES, BIKRAMPUR, DISTRICT GUNA.—Shri B. L. Nagarch of the Survey noticed ruins of temples at Bhadia Khoh near Bikrampur and a number of sculptures belonging to the Brahmanical and *Jaina* pantheon. Among the Brahmanical deities, the sculptures of Uma-Mahesvara, Karttikeya and Mahishmardini are noteworthy. Among the Jaina deities, a seated image of Parsvanatha and a standing image of a *Tirthankara* deserve mention. An inscription was also discovered at the same site by Shri C. B. Trivedi of the Central Circle of the Survey.

11. EARLY BRAHMI INSCRIPTION AND SYMBOLS, CHANDERI, DISTRICT GUNA. _____ Shri C. B. Trivedi of the Survey noticed engravings in early Brahmi script including *srivatsa, svastika,* and fish symbols on a hillock near the *Jaina* colossus, locally known as Khandarji.

12. EARLY AND LATE STONE AGE TOOLS, RAJGHAT, DISTRICT GUNA. ____ Shri C. B. Trivedi of the Survey discovered Early and Late Stone Age tools on the Betwa, besides a handaxe in the section of a nullah.

13. BUDDHIST STUPAS, TUMAIN, DISTRICT GUNA.—Professor K. D. Bajpai and Dr. S. K. Pandey of the University of Sagar discovered three Buddhist *stupas* near the village Tumain, each rising to a height of about 12 m. The *stupas,* which are situated on the high way between Mathura and Vidisha, were perhaps built during the Mauryan times.

14. JAINA AND SAIVITE SCULPTURES, TUMAIN, DISTRICT GUNA. ___ Prof. K. D. Bajpai discovered and identified the figure of a *Siva-gana* in dance pose, holding symbols

of fecundity and belonging to the Gupta Period. He also noticed an image of Parsvanatha seated in *padmasana;* the pedestal showing the figure of a *chakra* flanked by two lotus-bearing elephants. A Chaturmukha *Siva-linga,* belonging to the eighth century with three of the faces representing Siva and the fourth that of Parvati with elaborate coiffure was noticed.

15. MIDDLE AND LATE STONE AGE TOOLS, KUKARRAMATH, DISTRICT MANDLA.—Shri C. B. Trivedi of the Survey noticed Middle and Late Stone Age tools at Kukarramath near the Ranamuktesar temple.

16. EARLY AND MIDDLE STONE AGE TOOLS, AMKHERA, DISTRICT RAISEN.—Early and Middle Stone Age tools were discovered by Shri C. B. Trivedi of the Survey in a stratified deposit over the laterite and below the alluvial black soil.

17. BRAHMI INSCRIPTION, BHOJPUR-PIPARIA, DISTRICT RAISEN.—Shri Raghbir Singh of the Survey discovered an inscription of *circa* second century B. C, inscribed on the *such* of a railing, reading'............. *mitasa'.*

18. BUDDHIST STUPA, HAKIMKHEDI, DISTRICT RAISEN.—Shri K. G. Bhagchandani of the Survey discovered a Buddhist *stupa* having a diameter of 3-23 m. It may be mentioned here that three *stupas* had been discovered about a century ago by Cunningham at the neighbouring site known as Andher.

19. LATE STONE AGE TOOLS, MUREL KHURD, DISTRICT RAISEN.—Shri K. G. Bhag chandani of the Survey discovered Late Stone Age tools on the hillocks.

20 EARLY AND MIDDLE STONE AGE TOOLS, DHAMONI, DISTRICT SAGAR.—Shri C. B. Trivedi of the Survey discovered Early and Middle Stone Age tools in the vicinity of the Dhamoni fort.

21 EARLY STONE AGE TOOLS, ARAHRI, DISTRICT SEHORE.—Shri A. P. Sagar of the Survey discovered an Early Stone Age factory-site at Arahri.

22 PARAMARA SCULPTURES, LAUKHERI, DISTRICT SEHORE.—Shri A. P. Sagar of the Survey discovered a number of sculptures belonging to the Saiva pantheon.

MAHARASHTRA

23 BUDDHIST ROCK-CUT CAVES, MANDHAL, DISTRICT NAGPUR.—Dr. G. B. Deglurkar of the Department of Ancient Indian History, Culture and Archaeology of the Nagpur University, discovered a group of four rock-cut caves in the Kithali jungle (pl.LXXIB) near Bhovari village in District Nagpur. These caves are 6 km. away from the site of the rock-cut Brahmi inscriptions, located last year (1970-71, p.49) in the Chandala forest LXXI A} near Mandhal about 64 km. from Nagpur. Of these, three are in a row excavated in different rocks of domical shape facing west, the fourth being at the rear. Three of these caves consist of two chambers connected by a door; the average height of each cave being 1.21 m. and the maximum depth 3 m. One of these has a verandah and an

ante-room and has a square pillar at the entrance; the second has a door-frame with a channel cut to drain off rain water; the other two are inconspicuous.

MEGHALAYA

24. MEDIEVAL AND LATE MEDIEVAL SITES, PHULBARI AND SINGRIMARI, DISTRICT GARO HILLS.—Medieval and late medieval sites were discovered by Shri K.P. Gupta of of the Survey in the Garo Hills area between Phulbari and Singrimari. The remains consisted of brick-built structures and pottery, including medieval glazed ware.

ORISSA

25. SIVA TEMPLE, BADAKHIRA, DISTRICT CUTTACK.—Shri P. K. Ray of the Depart ment of Archaeology, Government of Orissa, reported the discovery of an eleventh century Siva temple at Badakhira, within the jurisdiction of Salipur Police Station.

26. MISCELLANEOUS SCULPTURES, IMMAMNAGAR, DISTRICT CUTTACK.—Images of Brahma, Vishnu and Manasa were reported by Shri P. K. Ray of the Department of Archaeology Government of Orissa, from Immamnagar within the jurisdiction of Police Station Salipur.

27. JAGANNATHA TEMPLE, KATARPA, DISTRICT CUTTACK.—Shri P. K. Ray of the Department of Archaeology, Government of Orissa, discovered a thirteenth century temple of Jagannatha at Katarpa within the jurisdiction of the Salipur Police Station.

28. VISHNU TEMPLE, KOILA, DISTRICT CUTTACK.—A thirteenth century Vishnu temple was discovered at Koila, within the jurisdiction of the Salipur Police Station by Shri P. K. Roy of the Department of Archaeology, Government of Orissa.

29. IMAGES OF VISHNU, KORAKARA, DISTRICT CUTTACK.—Shri P. K. Ray of the Department of Archaeology, Government of Orissa, discovered two Vishnu images from Korakara, within the jurisdiction of Govindpur Police Station.

30. MISCELLANEOUS SCULPTURES AND SIVA TEMPLE, KUNDESVARA, DISTRICT CUTTACK.—Shri P. K. Ray of the Department of Archaeology, Government of Orissa, reported the discovery of a *circa* ninth century Siva temple along with images of Bhairava, Ajaikapada Bhairava, Isana, Ravananugrahamurti, Chamunda, Durga, Saptamatrikas, Astikajaradakarh from Kundesvara within the jurisdiction of Balikuda Police Station.

31. SIVA TEMPLE AND IMAGES OF VISHNU, NIALI, DISTRICT CUTTACK.—A row often Vishnu images and a Siva temple, locally known as Sobhanesvara, was discovered from Niali within the jurisdiction of Police Station Govindpur, by Shri P. K. Ray of the Depart ment of Archaeology, Government of Orissa.

32. MISCELLANEOUS SCULPTURES, POKAPUR, DISTRICT CUTTACK.—Shri P. K. Ray of the Department of Archaeology, Government of Orissa, discovered images of

Umamahesvara and others from Pokapur within the jurisdiction of Jagatsinghpur Police Station.

33. BRAHMANICAL SCULPTURES, PERAGADI, DISTRICT MAYURBHANJ.—Images of Varahi, dancing Ganesa and Bhairava were discovered by Shri P. K. Ray of the Department of Archaeology, Government of Orissa, from Peragadi, within the Jurisdiction of Udala Police Station.

34. IMAGE OF VISHNU, CHAHATA, DISTRICT PURI.—Shri P. K. Ray of the Department of Archaeology, Government of Orissa, discovered an image of Vishnu, datable to *circa* tenth century from a ruined brick structure at Chahata within the jurisdiction of Nimapara Police Station.

35. VISHNU TEMPLE, NUAGAON, DISTRICT PURI.—Shri P. K. Ray of the Department of Archaeology, Government of Orissa, discovered a Vishnu temple with an image of an eight-handed Vishnu at Nuagaon, near the Nimapara Police Station.

36. VISHNU TEMPLE, PANDAVAKUDA, DISTRICT PURI.—A *circa* fourteenth century Vishnu temple was discovered by Shri P. K. Ray of the Department of Archaeology, Government of Orissa, at Pandavakuda within the jurisdiction of Balipatna Police Station.

37. SIVA TEMPLE, YUNTI, DISTRICT PURI.—Shri P. K. Ray of the Department of Archaeology, Government of Orissa, discovered a *circa* tenth century brick-temple dedicated to Siva known as Isanesvara at Yunti within the jurisdiction of the Kakatpur Police Station.

RAJASTHAN

38. SIVALINGA AND YAKSHA FIGURE, GAMRI AND NAOGAYA, DISTRICT BHARATPUR.—Shri Vijai Kumar of the Department of Archaeology and Museums, Rajasthan, discovered a Kushan Siva *linga* at Gamri, which depicts a pot-bellied *yaksha* on one side. He also brought to light a life-size Sunga *yaksha* figure from Naogaya.

39. MEDIEVAL SCULPTURES, GALIAKOT AND PUR, DISTRICT BHILWARA.—Shri P. L. Chakravarty of the Udaipur Circle of the Department of Archaeology and Museums, Rajasthan discovered images from an eleventh century temple at Galiakot and fragmentary medieval sculptures from Pur in the same District.

40. MEDIEVAL SCULPTURAL PANEL, JAMROLI, DISTRICT JAIPUR.—Shri R. C. Agrawala of the Department of Archaeology and Museums, Rajasthan, reported the discovery of a Pancha Ganesha panel in an eleventh-twelfth century temple at Jamroli, about 7 km. from Jaipur. The fourth figure from the left in the panel is that of an elephant seated on a lotus and is important from the point of view of iconography and symbolism.

41. MEDIEVAL TEMPLE, MAHAR KALAN, DISTRICT JAIPUR.—Shri Vijai Kumar of the Department of Archaeology and Museums, Rajasthan, discovered the remains of a medieval temple at Mahar Kalan in Chomu area of the District.

42. TENTH CENTURY TEMPLE, SEVAPURA, DISTRICT JAIPUR.—Shri B. M. S. Parmar of the Department of Archaeology and Museums, Rajasthan, discovered a tenth century temple, locally known as Dhamayach Mata or Dadhimati Mata temple, in village Sevapura, Tahsil Amber. Two broken pillars, having vase and foliage designs forming part of the *sabhamandapa,* which is now in ruins, were also found.

43. SIVA TEMPLE, TODA VELOD, DISTRICT JAIPUR.—Shri B. M. S. Parmar of the Department of Archaeology and Museums, Rajasthan, discovered a Siva temple at Toda Velod in Tahsil Jamua Ramgarh, in District Jaipur. The temple is ascribable to late medieval times and contains an image of a goddess in its cella.

44. CARVED PILLAR, BUCHKALA, DISTRICT JODHPUR.—Shri R. C. Agrawala of the Department of Archaeology and Museums, Rajasthan, discovered a pillar near Buchkala which has, on its top, the carved figure of a two-armed Vishnu in the form of Krishna lifting the Govardhana mountain. The figure of Vishnu has been shown with a *gada* in the right hand and the Govardhana mountain on the palm of the left-hand.

45. EARLY PRATIHARA MONUMEMTS AND STEP-WELL, SATIN, DISTRICT JODHPUR.—Shri R. G. Agrawala of the Department of Archaeology and Museums, Rajasthan, discovered early Pratihara monuments and an early medieval step-well at Satin, about 8 km. from Pipar.

46. EARLY PRATIHARA TEMPLE, SOYALA, DISTRICT JODHPUR.—Shri R. C. Agrawala of the Department of Archaeology and Museums, Rajasthan, discovered an early Pratihara temple at Soyala, about 73 km. on the Jodhpur-Nagaur road.

47. JAINA TEMPLES, DISTRICT SIROHI.—Shri Sureshwaranand of the Department of Archaeology and Museums, Rajasthan, discovered Jaina temples, datable between twelfth-thirteenth centuries, at Kantal, Kayadra and Sanwarli, the latter site in Basantgarh area of District Sirohi.

48. SIVA TEMPLES, DISTRICT SIROHI.—Shri Sureshwaranand of the Department of Archaeology and Museums, Rajasthan, discovered a group of three Saiva shrines known as Panchadeoli at Saran-ka-Khera near Jirawal, datable to the twelfth century. He also discovered Siva temples at Anadra across the Gogana Nala datable to the twelfth and fourteenth centuries and at Sangarli-ka-Khera, datable to the twelfth century; all in District Sirohi.

49. BRICK TEMPLE, BASANTGARH, DISTRICT SIROHI.—Shri Sureshwaranand of the Department of Archaeology and Museums, Rajasthan, reported the discovery of a seventh century brick-temple at Basantgarh dedicated to Mahishamardini.

50. REMAINS OF TEMPLE AND SCULPTURES, DATANI, DISTRICT SIROHI.—Shri Sureshwaranand of the Department of Archaeology and Museums, Rajasthan, discovered ruins of a temple datable to the eleventh-twelfth century besides some sculptures scattered around the temple.

51. GROUP OF SMALL SHRINES, POSITARA, DISTRICT SIROHI.—Shri Sureshwaranand of the Department of Archaeology and Museums, Rajasthan, noticed a group of small shrines datable to the twelfth century at Positara.

TRIPURA

52. IMAGE OF DURGA, KAMALASAGAR, TRIPURA.—The Secretary of the Department of Education, Tripura, reported the discovery of a sandstone image of Mahishamardini in the course of cleaning a tank in the Kamalasagar area of Tripura. This image is now kept in the Museum. A good number of pot-sherds and terracottas were also discovered from Pilak, and have been kept in the Museum.

UTTAR PRADESH

53. PAINTED GREY WARE, GUNJ, DISTRICT AGRA.—Shri J. S. Nigam of the Survey discovered sherds of the Painted Grey (pi. LXX B), thick grey and black-slipped wares at Gunj. No sherd of the N.B.P. Ware was found.

54. N.B.P. WARE, GHOSI, DISTRICT AZAMGARH.—Shri K. M. Srivastava of the Survey, collected sherds of the N.B.P. Ware of a fine variety from the mound at Ghosi, a Tahsil headquarters, in District Azamgarh. The mound is locally known as Raja Nahusha-ka-kot.

55. PAINTED GREY WARE, GANWARIA, DISTRICT BASTI.—Fragments of grey ware, painted in dots and dashes were collected from the ancient site of Ganwaria near Piprahwa by Shri K. M. Srivastava of the Survey. Sherds of the N.B.P. Ware had already been reported earlier from the site. The site also yielded a fragmentary sherd inscribed in early Brahmi characters.

56. MONOLITHIC PILLAR AND STONE SCULPTURES, DISTRICT GHAZIPUR.—Shri B. K. Sharan, of the Survey, reported the discovery of a monolithic pillar with lustrous polish and a stone head from village Shahpur in the jurisdiction of the Zamania Police Station. A fragmentary standing stone image of Durga with attendants in village Lahuar within the area of the same Police Station, and an image of Umamahesvara in village Karwandia of Muhammadabad Police Station have also been reported.

57. N.B.P. WARE, BIRPUR, DISTRICT GHAZIPUR.—Fragments of the N.B.P. Ware were reported by Shri B. K. Sharan of the Survey from an extensive mound in village Birpur of Muhammadabad Police Station in District Ghazipur.

58. IMAGE OF SIVA, MAHOBA, DISTRICT HAMIRPUR.—A colossal image of Gajantaka-Siva, carved on a granite hill (locally known as Gokar) to the west of Madan Sagar lake, was noticed by Shri Krishna Kumar of the Survey, and is stylistically ascribable to *circa* ninth century.

59. MEDIEVAL SCULPTURE, JAIMOU, DISTRICT KANPUR.—Shri L. M. Wahal noticed

a mutilated image of Mahishamardini of the medieval period at village Jaimou in the Devi's temple which is under worship.

60. MEDIEVAL WARES, TIKRI, DISTRICT LUCKNOW.—Dr. S. B. Singh of the Survey picked up medieval wares at village Tikri.

61. PAINTED GREY AND N. B. P. WARES AND SCULPTURES, DALIPPUR, DISTRICT MAINPURI.—Shri L. M. Wahal of the Survey reported the occurrence of the Painted Grey Ware, Northern Black Polished Ware and red ware from a mound at village Dalippur-Sathani which lies near the railway track.

Shri Wahal also discovered five stone sculptures belonging to the medieval period representing Umamahesvara, Vishnu and Ganesa at village Dalippur-Sathani.

62. N. B. P. WARE, RING-WELLS AND A BUDDHA IMAGE, MATHURA.—From an un protected portion of the Katra Keshavdeo mound was unearthed a red sandstone image of the Buddha belonging to the Kushan period, which is now housed in the local museum. During subsequent explorations in the area, Shri J. S. Nigam of the Survey noticed several ring-wells at the same site. He also picked up sherds of the fine grey ware, N. B. P. Ware, Kushan and Gupta pottery, terracotta beads and animal figurines, and a bone stylus from the thrown-up earth.

63. ANCIENT RAILING-POSTS, SENAPANI, DISTRICT NAINITAL.—Shri M. C. Joshi of the Survey noticed the remains of stone railing-posts in a dense forest on a hill-range called Byandhur near Senapani on the Haldwani-Tanakpur road. As the site has been considerably eroded by a nullah, almost all the railing-posts have been totally dislocated and are lying pell-mell in the nullah itself.

Made of sandstone, somewhat akin to those from the Mathura region, the railing-posts appear to have an almost uniform structural design and size. An intact specimen, lying against a tree at the site, was rectangular in shape (about 27 cm. x 15 cm.) and a total height of about 1*39 m. with three mortise-holes (27 cm. long, 8 cm. in section in the centre) of the usual form for insertion of *suchis* on the shorter sides. The principal (broader) sides of this post are sculptured with beautiful *mithuna* figures framed above and below by relieved *vedika* motifs. A minor *mithuna* relief also occurs towards the top. Other similar posts, which are mostly in fragments, bear figures of *yaksha, yakshi* and *kichaka gana* in relief with traces of upper and lower miniature rail-borders and mortise-holes on the sides.

On stylistic consideration these railing-posts can be dated to *circa* first century B.C., although it cannot be stated whether the structure originally enclosed by them was of Buddhist or non-Buddhist association.

64. MEDIEVAL SITE, BAMNIPURI, DISTRICT RAMPUR.—Sherds of medieval glazed ware, Chinese pottery, lustrous black ware and red ware were collected by Shri M. C. Joshi, of the Survey, from a group of mounds at Bamnipuri, 5 km. north of Rampur city.

65. N. B. P. WARE AND SCULPTURES, DISTRICT SITAPUR.— Dr. S. B. Singh reported the occurrence of the Northern Black Polished Ware at village Bilariya. He has further reported the occurrence of Gupta period terracottas at village Misrikh, medieval sculptures at Unchagaon, Alampur and Nasirabad villages.

66. HARIHARA IMAGE, NIMAR, DISTRICT SITAPUR.—Shri L. M. Wahal reported a small image of Harihara at village Nimar, near the Tirth tank belonging to early medieval period.

WEST BENGAL

67. MICROLITHS, NEOLTTHS, BLACK-AND-RED WARE AND TEMPLES, DISTRICT BIRBHUM.—During the course of his exploration in the District, Shri V. Sen, of the Survey, discovered: (i) microliths at Mama Bhagne Pahar, Kanaipur, Kashthatari; (ii) neoliths at Parisar; (iii) black-and-red ware at Bahiri, Charkalgram. Kusumjatra, Sindurtopa and Uchkerar; and (iv) extensive ruins of temples and habitations of the medieval period at Deucha.

68. BUDDHIST SITE, SILAMPUR, DISTRICT BURDWAN.—Shri S. K. Ghosh of the Survey, located a Buddhist site at Silampur which also yielded an image of Tara.

V. RADIOCARBON DATES[1]

The radiocarbon dates[2] presented below, were measured by the Tata Institute of Fundamental Research, Bombay, during the current year.[3] The dates are based on the radiocarbon half-life value of 5730 years. For B.C./A.D. scale, 1950 has been taken as the base year. The sites are arranged state-wise

ASSAM

1. HARUTARU, DISTRICT KAMRUP

TF-1182. Neolithic Culture (?) — Modern
Burnt wood; depth 0-56 m. Rootlets were present.

BIHAR

2. KANKAR BAGH, DISTRICT PATNA

TF-1115. Palisades (?) — 2555 ± 115 (605 B.C.)
Wood; depth 6-2 m. below surface.

3. BARUDIH, DISTRICT SINGHBHUM

TF-1101. Neolithic Culture — 2545 ± 90 (595 B.C.)
Carbonaceous clay; Locus, N-S 38 cm., E-W. 59-5 cm.; depth, 104-144 cm.; Sample No. 4; Acc. No. 152.

TF-1102. Neolithic Culture — 2610 ± 90 (660 B.C.)
Carbonaceous clay; Locus, N-S 31-5—57-5 cm., E-W. 62—98-5 cm.; depth, 94-3 cm.; Sample No. 5; Ace. No. 147.
Comment: collected along with Neolithic celt.

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[1] Contributed by Dr. D.P. Agarwal and Kumari Sheela Kusumgar.

[2] Further details can be head from the submitting organizations.

[3] Samples submitted: 1, by the Department of Anthropology, Dibrugarh University; 2 and 22, by the Director General, Archaeological Survey of India; 3, by the Department of Anthropology, Calcutta; 4, by the Department of Archaeology, Government of Bihar, Patna; 5, by Coastal Engineering Division, Kerala Engineering Research Institute, Peechi, Kerala; 7, by the National Institute of Oceanography, Panaji; 6, 8, 9 and 11 to 18, by the Deccan College Post-graduate and Research Institute, Pune; 10, by the Department of Geology, St. Xavier's College, Bombay; 19, by the Tata Institute of Fundamental Research Bombay; 20, by the Bhabha Atomic Research Centre, Bombay; 21, by the Port Trust, Cochin; 23, by the Department of Archaeology and Museums, Government of Rajasthan, Jaipur; 24, by the Geological Survey of India, Jaipur; and 25, by Shri S.T. Baskaran, Madras.

TF-1090. Neolithic Culture — 2700 ± 110 (750 B.C.)
Carbonaceous clay; Locus, N-S 68 cm., E-W 44.5 cm.; depth, 74 cm.; Sample No.2 ; Acc.No. 141.

TF-1100. Neolithic Culture — 3005 ± 210 (1055 B.C.)
Carbonaceous clay; Locus, N-S 29.5—56 cm., E-W 12.5 cm.; depth, 91.3 cm.; Sample No. 31; Acc. No. 144.

4. CHIRAND, DISTRICT SARAN

TF-1028. Black-and-Red Ware deposit — 3490 ± 90 (1540 B.C.)
Charcoal; Tr. CRD-XI, layer 10; depth, 6.5 m.

KERALA

5. COCHIN HARBOUR AREA, DISTRICT ERNAKULAM

TF-1147. Coastal Sediments — 9050 ± 115 (7100 B.C.)
Wood; depth 21 m. near backwaters.

MADHYA PRADESH

6. RATI KARAR, DISTRICT NARSIMHAPUR

TF-967. Late Pleistocene — 3370○ - 162§ (31750 B-c')
Shells; depth, 11 m.; found along with Middle Stone Age tools and a few animal bones.

MAHARASHTRA

7. BOMBAY, DISTRICT BOMBAY SUBURBAN

TF-970. Quaternary Deposit — 11035 ± 400 (9085 B.C.)
Coral: from the continental shelf off Bombay; depth, 150 m.

8. MADH POINT, DISTRICT BOMBAY SUBURBAN

TF-1186. Holocene — 2115 ± 90 (165 B.C.)
Shells; 0.45 m. below surface and 5.5 m. above low-water level.

9. MANORI, DISTRICT BOMBAY SUBURBAN

TF-1192. Holocene — 4245 ± 85 (2295 B.C.)
Shells; 5.5 m. below surface and 6 m. above low-water level.

TF-1193. Holocene — 4540 ± 100 (2590 B.C.)
Shells; depth, 3.5 m. below surface.

TF-1194. Holocene — 4385 ± 110 (2435 B.C.)

Shells; depth, 1.5 m. below surface.

10. ST. XAVIER'S COLLEGE, DISTRICT BOMBAY SUBURBAN

TF-1197. Holocene — 2800 ± 110 (850 B.C.)

Shells; depth, 1.95 m. below surface.

11. CHAUL, DISTRICT KOLABA

TF-1231. Holocene. — 2180 ± 95 (230 B.C.)
Shells; depth, 4-65 m. below surface.

12. KORLAI-BORLAY, DISTRICT KOLABA

TF-1232. Holocene — 2410 ± 95 (460 B.C.)
Shells; depth, 1-6 m. below surface.

13. MANDWA, DISTRICT KOLABA

TF-1230. Holocene — 2050 ± 105 (100 B.C.)
Shells; depth, 1-5 m. below surface.

14. INAMGAON, DISTRICT PUNE

TF-1085. Chalcolithic Culture. — 3390 ± 110 (1440 B c)
Charcoal; INM-1, Tr. C 2, layer 6; depth, 1-82 m.

TF-1087. Chalcolithic Culture — 3355 ± 105 (1405 B c)
Charcoal; INM-1, Tr. D 2, layer 12.

TF-1177. Late Pleistocene — 19290 ± 360 (17340 B.C.)
Fresh water shells; 2 m. above the bed level of River Ghod. A few Middle Stone Age tools have been found in association with the shells.

15. GARGOAN, DISTRICT PUNE

TF-1111. Late Pleistocene — 10310 ± 155 (8360 B.C.)
Bone from bank of the Mula river in brown silt; 12 m. above water level and immediately above boulder gravel.

16. MURUD, DISTRICT RATNAGIRI

TF-1150. Holocene — 2600 ± 105 (650 B.C)
Shells; depth, 3.3 m. below surface.

17. RATNAGIRI, DISTRICT RATNAGIRI

TF-1200. Quaternary Deposits — 10415 ± 260 (8465 B.C.)
Coral; from the continental shelf off Ratnagiri; depth 88 fathom from surface of sea level.

18. TASGAON, DISTRICT SANGLI

TF-1213. Alluvial Deposits — 3855 ± 110 (1905 B.C)
Wood; 10 cm. below the terrace level and about 1000 m. away from the left bank of the river Krishna.

19. MAHIM, DISTRICT THANA

TF-1149. Holocene — . 3650^{+2035}_{-1670} (34100 B.C.)
Shells; from inter-tidal zone.

MYSORE

20. KOLAR GOLD-MINES, DISTRICT KOLAR

TF-1199. Old Workings — 1290 ± 90 (A.D. 660)

21. PANAMBUR HARBOUR AREA, DISTRICT SOUTH KANARA

TF-1089. Quaternary Deposits — 38460^{+5105}_{-3190} (36510 B.C.)
Carbonized wood; depth 12-5 m.

PUNJAB

22. BARA, DISTRICT ROPAR

TF-1204. Bara Culture — 3795 ± 155 (1845 B.C.)
Wood charcoal; Bara 6, pit 2, sealed by layer 3; depth 0-8 m.

TF-1205. Bara Culture — 3840 ± 95 (1890 B.C.)
Wood charcoal; Bara 5, layer 9; depth 2-2. m.

TF-1206. Bara Culture — 3230 ± 100 (1280 B.C.)
Wood charcoal; Bara 5, layer 10; depth 2-5 m.

TF-1207. Bara Culture 3595 ± 90 (1645 B.C.)
Wood charcoal; Bara 8, pit 1, sealed by layer 1;
depth 1-3 m.

RAJASTHAN

23. NOH, DISTRICT BHARATPUR

TF-993. P. G. Ware Culture 2675 ± 150 (725 B.C)
Charcoal; Tr. G, layer 20; depth, 6-9 m.

TF-994. N.B.P. Ware Culture 2635 ± 105 (685 B.C.)
Charcoal; Tr. G, layer 14 C; depth 4-7 m.
TF-1144. P.G. Ware Culture 2440 ±90 (490 B.C.)
Charcoal; from "a stratified level"

24. DARIBA MINES, DISTRICT UDAIPUR

TF-1117. Underground Mines 2310 ± 105 (360 B.C.)
Wood; Dariba Rajpura; depth, 64 m.

TAMIL NADU

25. ARMAHALAI, DISTRICT NORTH ARCOT

TF-1146. Wall Paintings 2235 ± 135 (285 B.C.)
The sample was taken from a
mud wall with paintings.

VI. MUSEUMS

1. SITE-MUSEUM, AHAR.—Display arrangements were improved by providing better pedestals in the Museum.

2. RAJPUTANA MUSEUM, AJMER.—The wall-cases and the walls of the galleries were white-washed with oil-paint.

3. GOVERNMENT MUSEUM, ALWAR.—Lighting arrangements in the Museum were considerably improved. Besides, electric fans were also provided in the galleries.

4. ARCHAEOLOGICAL MUSEUM, AMARAVATI.—Re-organization of the galleries was completed. In this Museum, there are three galleries including the Key Gallery. Besides finds from Amaravati, objects obtained from Dharanikota and Gummadidurro are also exhibited. Among the important finds on display are relic caskets, semi-precious beads, ivory ear-rings, gold necklace and coins.

In the open-air enclosure, a model of the Amaravati *stupa* and cement casts of almost all Amaravati pieces from the Government Museum, Madras are displayed.

5. ARCHAEOLOGICAL MUSEUM, AMBER.—Eleven sculptures presented by Shri Ratna Chandra Pansari, who had found them from a well near Chomu Thakur's Haveli, and a torso brought by Shri Kalu Singh, Chowkidar, from Bairath were acquired by the Museum. Besides, the work relating to the cataloguing of Museum objects continued.

6. SHRI BHAVANI ART MUSEUM AND LIBRARY, AUNDH.—Stock taking of the Museum-objects, both on display as also in Reserve Collection, was undertaken. All the paintings in the Museum were cleaned. About one hundred wooden frames were given French polish. The frames of old European paintings were painted in golden colour. The chain in the open courtyard was painted in silver colour. Similarly, in the upper gallery, all the paintings of the *Kiratarjuna* series were cleaned and re-arranged in proper manner. Out of all the European paintings, nine were given wax-varnish. In the Art Gallery, yellow and blue curtains were provided on all the windows to protect the paintings from sunlight.

Efforts were made to open the "Children's Museum" as a Section of this Museum. Here, porcelain, wooden and bronze objects from India and abroad were displayed. This Section was started in an independent gallery.

7. STATE MUSEUM, BHARATPUR.—Three sculptures from Noh, and three from Pengore were added to the collection of this Museum.

Tube-lights, covered with transparent perspex, were purchased for providing proper light in the galleries. Archaeological and Painting Galleries were re-organized, sculptures were re-arranged and the old pedestals of the sculptures were repaired. In the Painting Gallery, all the broken glasses of the doors and ventilators were repaired and new glasses were fitted. Every care was taken to present a better display of Museum exhibits.

8. ORISSA STATE MUSEUM, BHUBANESWAR.—The acquisitions for the Museum consisted of: three hundred and thirty-four silver punch-marked coins from Jangadapandia, District Ganjam; thirty-nine Ganga *farans* (gold coins) from Jagatsinghpur area of District Cuttack; nine Kaldar coins from Baud and a number of gold coins from Kuliana in District Mayurbhanj; four huge stone slabs with Telugu inscriptions from Balimela Dam Project area in District Koraput; three copperplate inscriptions of Danarnnava Deva of the Eastern Ganga dynasty; forty-seven stone sculptures; twenty-four swords; one hundred and fifty-two art objects; twenty-three natural history specimens, including one elephant's skeleton; one hundred and sixty-six prehistoric tools; four hundred and thirty-five palm-leaf manuscripts; and one thousand eight hundred forty-eight reference books. Additions and alterations were also made to the Bird Gallery, Ethnology section of the Anthropology Gallery and the Bronze Gallery.

9. GANGA GOLDEN JUBILEE MUSEUM, BIKANER.—A new section of the folk-art and folk-craft was arranged on the first floor of the Museum.

10. PRINCE OF WALES MUSEUM OF WESTERN INDIA, BOMBAY.—The Archaeological Section of the Prince of Wales Museum, Bombay, was mainly concerned with the work of re-organization of the galleries. Two of its important galleries, viz. the Indus Valley Gallery and the Epigraphy Gallery were closed to the public, for these had since been dismantled to enable undertaking of extensive repair work to the extension wing of the Museum. As regards re-organizing the Archaeological Section in the Key Gallery, new show-cases for displaying the Gandharan and the Mathura Schools of Sculptures and Terracotta Art of India were set up. Quite a number of sculptures have also been effectively set up as garden exhibits.

The Government of Maharashtra donated silver coins of the following rulers as a part of share of Treasure Trove: (1) Al. Mohd. Shah II Khalji, (mint: Delhi Hazrat); (2) Firuz Shah, Bahmani, (mint: Ahsanabad) A.H. 814; (3) Firuz Shah, Bahmani (mint: Ahsanabad), A.H. 816 (4) Firuz Shah, Bahmani (mint: Ahsanabad), A.H. 822; (5) Alamgir II, Mughal (mint: Arcot); and (6) Alamgir II, Mughal, (mint: Arcot).

11. MUSEUM AND ART GALLERY, UNIVERSITY OF BURDWAN, BURDWAN.—The Museum and Art Gallery, which was established in 1965, acquired a good number of antiquities including stone sculptures, terracotta figurines, temple plaques, bronzes, paintings, manus cripts, etc., from different parts of West Bengal as also from other parts of India. Among the stone sculptures mention may be made of the two-armed Vaisravana from Kanchan Nagar, *ashtamukhalinga* from Motibagh (sixth-seventh centuries), a standing four-armed *tribhanga* Vishnu from Sijna, District Burdwan (eleventh century), three *navagrahas* (ninth-tenth centuries) and three red sandstone images of Durga, Lakshmi and Mahasena from the Mathura region.

The Museum was greatly enriched by the acquisition of terracotta figurines, temple plaques, seals, numerous stone beads, pottery from Chandraketugarh, Harinarayanpur, Gopalpur in District 24-Parganas and from other districts of West Bengal. The Museum also acquired a very good collection of wood carvings of Venugopala, decorative wooden panels with elephant and lion motifs, some silver and copper punch-marked coins, a silver coin of Alexander the Great, archer type gold coins of Chandragupta II from Adrahati and of Skandagupta from Mulgram (in District Burdwan), and one hundred silver and copper coins of the Indo-Muslim and modern periods. Among these, mention may

be made of one eighteenth century Tibetan painted scroll, two Rajasthani miniatures and twenty oil paintings by some European artists.

12. INDIAN MUSEUM, CALCUTTA.—During the period under review, the archaeological collections of the Indian Museum was further enriched by a number of new acquisitions through purchase, of which special mention may be made of the following:

(i) *Terracottas:* In this group of objects, eight early Indian terracottas, reportedly from Kausambi, are of considerable interest. The earliest among them, a female head, is ascribable to the Mauryan period *(c.* third century B.C.). Another piece, a triangular plaque, shows a goddess standing on lotus and is of the Sunga period *(c.* second century B.C.). There are five pieces belonging to the Kushan period *(c.* second century A.D.), of which a toy-cart *(mrichchakatika),* a male figurine wearing a conical head-dress with his hands in *namaskara-mudra* and a plaque showing a *mithuna* couple, both figures wearing turbans or some sort of hats, are noteworthy. The last piece, also a human head, wearing a headdress that is plain on the right side and decorated with strings of bead-like ornaments on the left, is to be ascribed to the Gupta period (c. sixth century A.D.). Mention may also be made of thirty-nine clay and terracotta seals of different shapes and sizes, of dates ranging from the second century B.C. to the fifth century A.D. and of five terracotta plaques from Midnapore, West Bengal, ascribable to the eighteenth century A.D. Besides, two temple terracottas, one depicting an affluent man and the other a lady on a lotus, were also collected.

(ii) *Stone Sculpture:* two sculptures, carved in black basalt, one depicting the *maha-parinirvana* of the Buddha and the other, a Vasudhara, both belonging to the tenth-eleventh century A.D., were also added to the collection through purchase during this period.

A good number of stone sculptures and plaques, besides other objects, confiscated by the Customs authorities have subsequently been purchased by the Museum through its Art Purchase Committee. Of these, mention may be made of: an image of the Buddha in *abhqya-mudra* of the eighth-ninth century A.D., a seated Kubera from Central India, datable to the eleventh century A.D., a *salabhanjika* (pl.LXXIII A) from Mathura of the second century A.D., two black basalt figurines of Mahishamardini and Gauri ascribable to the thirteenth-fourteenth century A.D., an image of Tara from Bihar of *c.* eleventh century A.D. and a few torsos and heads of Vaishnava mendicants.

(iii) *Manuscripts:* A lot of twenty-eight manuscripts, originally written by Abanin-dranath Tagore, the celebrated author-painter of Bengal, was one of the outstanding collections made by the Museum during the period.

Two Sanskrit manuscripts, copied in Bengali script, were also purchased; one of which is a copy of the *Kumarasambhavam* by Kalidasa with annotation by Sri Govindarama Siddhantavagisa and the other is *Kalapachandra* by Suesena.

(iv) *Coins:* Eighty-eight coins (eleven gold, thirty-five silver and forty-two copper), belonging to different periods of Indian History, were acquired through purchase. Notable among these are a few copper coins of the Mitra dynasty of Panchala, one silver coin of Indrapratapa Narayana of Kachhar, one silver coin of Krishna Manikya of Tripura, a rare silver coin of Rajendra Chola, a very rare copper coin of Bhumaka, six gold *fanams* of the Eastern Chalukyas, a gold coin of Jaipur State in the name of Alamgir II, a gold coin of Farrukhsiyar, a half *muhar* of Jodhpur State and a few copper coins of Akbar from the Narnaul mint.

With a view to focussing attention on the art of Bengal and its development from the

remote past to recent times, an exhibition entitled "The Art of Bengal through the Ages" was organized.

The Mobile Exhibition on Indian Archaeology, which is an integral part of this Museum's activities, travelled 1800 kilometres during the period under review, covering the Hooghly, Bankura, Purulia and Malda Districts of West Bengal and the Santal Parganas and Dhanbad Districts of Bihar. Recently, a new diorama, representing the sectional view of the excavation work in progress at Arikamedu in 1945, was added to the exhibition. Some additional descriptive lables were also introduced, besides retouching and repainting the dioramas depicting ramparts and the 'Great Bath' at Mohenjodaro.

Pre- and Proto-history section: A newly-organized section of the Prehistory Gallery, set up on modern lines, was thrown open to the public on 3rd September, 1971.

On view in this section are some isolated scrappy evidences from the Cemetery-H at Harappa, Chanhu-daro, Jhukar, Jhangar and Copper-Hoard Cultures in addition to iron objects and funerary pottery from the South.

Fragments of grey incised pottery from Jhukar, Jhangar and Chanhu-daro and Copper Hoards from North and Central India, are also on display.

The entire Gallery has been given a face-lift by repolishing the show-cases. A number of pottery specimens, exhibited here (pi. LXII A), have been provided with pedestals made of transparent acrylic sheets.

Under the development programme of the Museum, one of the Sarnath Bays of the Gupta Gallery has been re-organized. The old method of displaying sculptures on individual masonry pedestals has altogether been changed and wooden show-cases with teak-ply covering and better illumination have been provided (pi. LXXII B).

A number of improved labels on perspex sheets and better lighting arrangements in some show-cases have also been introduced.

13. ARCHAEOLOGICAL MUSEUM, UNIVERSITY OF CALCUTTA, CALCUTTA.—The Museum (attached to the Department of Archaeology) acquired the following two objects: (i) two inscribed stone seals, and (ii) one sculptured stone slab. The former, bearing carvings and inscriptions, were acquired from two different villages of District Murshidabad. Both the seals are four-faced. Seal No. 1 contains carvings of *gada, sankha, padma, chakra, padayu-gala* (pair of feet) and an inscription engraved in characters of the fifteenth-sixteenth century A.D. The inscribed legend, read by Dr. B. N. Mukherji, runs as *Dhanaya (Dhyanaye) padaya.*

The four-faced seal no. 2 bears carvings of *sankha* and *padma* on one face, *gada* and *chakra* on another and figures *of matsya* (fish) and *kurma* (tortoise) on the third one. The fourth face contains the engraving of an inscription, read by Dr. Mukherji, as *Om nama Narayana.*

Both the seals contain the representations of the well-known attributes of Vishnu. Seal No. 2 bears, in addition, the carvings of his two incarnated forms, viz., fish and tortoise. These two seals were objects of worship by the *vaishnavas* of West Bengal in the fifteenth-sixteenth century A.D.

Of the latter, several fragmentary stone slabs bearing carvings were recovered from the village Jadupur, near the excavated site of Rajbadidanga, District Murshidabad. One of these stone slabs bears sculptured figures.

The front portion of the stone slab contains two beautifully carved receptacles, the one on the left is partly damaged. The intervening space between the two recesses is covered by an artitistically carved pilaster, bearing carvings of halves of two blossomed lotuses,

one above the other. Each recess bears a seated figure carved in bold and high relief in the round. The sculptured figures inside the recesses may be identified with the representations of the *ganas.* Stylistically, the sculptured figures inside the recesses of the stone slab may be attributed to *c.* seventh-eighth century A.D. This stone slab bearing the carvings of the *gana* figures, might have been used as a stone lintel affixed above the entrance of a Siva temple.

14. BHURI SINGH MUSEUM, CHAMBA.—The Museum acquired as many as seventy objects during the year. The most significant amongst which were the copper coins of the second and third centuries A.D. of the Kunindas and the Adumbaras. A big hoard of coins is said to have been found by a local contractor of the P.W.D., a few kilometres away from Mandi town in the Beas Valley. Out of this hoard twenty-four coins have so far been acquired for this Museum. The coins of these ancient tribes, found in the Beas Valley, are perhaps being reported for the first time. One copper sculpture in post-Gupta style or may be of the late sixth century A.D. of a devotee, probably a king, is the most important acquisition from District Chamba. The devotee is wearing a short *dhoti* in which a dagger is stuck at the right. The lobes of the ears are extended and have ear rings. He is wearing one pair of bracelets at the wrists and a necklace of a single row of beads not far away from the neck. The hair is fashioned in spirals with a *ushnisa* at the top. This discovery lends a new significance to the already well-known Chamba bronzes.

Fifteen Pahari paintings were added to the painting collection. Out of these, one painting each of Kulu, Guler and Chamba Schools are done in an uncommon style.

15. GOVERNMENT MUSEUM, CHITORGARH.—Life-size plaster casts of Gadia Lohars and Bhils were acquired for display in the Museum. Two heads of Jaina *tirthankaras,* an image of Jaina *tirthankara* and one female figure were acquired for the Museum. A good number of sculptures was received from the Archaeological Survey of India.

16. CHANDRADHARI MUSEUM, DARBHANGA.—The Museum acquired fine terracotta pieces from Bhagalpur and a specimen of Mithila's calligraphy-work, belonging to late Pt. Dinbandhu Jha, *Sidhanta Kaumudi* and *Paribhashendusekhar.*

The coin cabinet, containing coins of Greek, Hindu and Muslin origin, have been re-classified in course of preparation of the catalogue of coins.

17. ARCHAEOLOGICAL MUSEUM, RED FORT, DELHI.—On the completion of the repairs to the building, re-organization of the galleries was started. One of the galleries will be designated as Bahadur Shah Gallery, where objects belonging to his period or personal use will be displayed.

18. ASSAM STATE MUSEUM, GAUHATI.—During the year under review the following important objects were acquired:

A set of thirty-two coin-casts in original sizes and colours showing coins of India through the ages, from the Government Museum, Madras; parts of two wooden pillars decorated with floral design, from the Barpeta Kirtanghar; colour prints of the miniature paintings of the different schools of India, from the Bharat Kala Bhavan, Varanasi; fourteen gold coins belonging to the sixth-seventh century (possibly of some pre-Ahom Kamarupa king) from Paglatek, fifteen kilometres west of Goalpara town; a pre-Ahom image

of Bhairava, fifty centimetres in height; and two big dioromas—one of Tea Garden of Assam and other of the Gauhati Oil Refinery.

19. H.H. MAHARAJA JIWAJI RAO SCINDIA MUSEUM, GWALIOR.—The Museum acquired a number of coins to be displayed in the Coin Gallery. Among these the more noteworthy is a coin of Kumaragupta type as also a few copper Kushan and Naga coins.

An original hand-written letter of Maharani Lakshmibai, treated in the National Museum Conservation Laboratory, is another notable acquisition of this year.

20. ARCHAEOLOGICAL MUSEUM, HALEBID.—Two sculptures of the Hoysala Period were acquired from nearby temples. Another inscribed slab was also added from Ghatta-dahalli four kilometres from Halebid.

21. ARCHAEOLOGICAL MUSEUM, HAMPI.—A new building has been constructed here for the re-organization of the Museum. About ninety per cent of the objects have been shifted from the old Museum to the new building.

22. HOSHIARPUR MUSEUM, HOSHIARPUR.—A new Museum has been organized at Hoshiarpur where sculptures discovered at Dholbaha, Sultanpur Lodhi and Mandian have been displayed.

23. STATE MUSEUM AND CONTEMPORARY ART PAVILION, HYDERABAD.—The following objects were acquired for the Museum: sculptures, including one of Mahishasuramardini from Gollathagudi, District Mahbubnagar; an image of Annapurna, probably of the twelfth century, from the Osmania University; and two Qutb Shahi miniatures, bronzes and contemporary paintings.

During the year under report, electric fittings were provided to the wooden show-cases where old arms, terracotta sculptures, Pala sculptures and Bidri Wares are displayed.

24. GOVERNMENT CENTRAL MUSEUM, JAIPUR.—A plan for re-organization of upper galleries was drawn out and a few show-cases were prepared for display on scientific lines. For affording a comparative view, metal objects from outside Rajasthan were also displayed. Other show-cases were also attended to likewise. A number of exhibits were re-labelled. A classified catalogue of the paintings in the Museum was prepared. Proper lighting arrangements were provided in the galleries in general and inside show-cases in particular.

25. ARCHAEOLOGICAL MUSEUM, JHALAWAR.—Re-organization and better display of the museum-exhibits was taken up along with labelling and cataloguing. One seated Siva image from Chandrabhaga, District Patan, was acquired for the Museum.

26. SARDAR MUSEUM, JODHPUR.—Several fragmentary sculptures of tenth century A.D. and six Jaina images were acquired for the Museum from District Pali.

27. KOLHAPUR MUSEUM, KOLHAPUR.—During the year under review, the Museum acquired five silver coins from the Headquarters office at Bombay.

The work in the Natural History Section, which was opened recently, was completed.

In the Indian Art Section, ten paintings were fixed in golden frames. Similarly, the

background colour of these paintings was altered. An oil colour painting *"Tin Ghadicha Dav"* prepared by the artist Shri Chapale, was purchased.

The re-arrangement of the Arms and Armaments Gallery was completed. The wall show-cases displaying spears were prepared for spears with long sticks.

The existing display in the Miscellaneous Art Section was of old type. To change this, eight new type of show cases were purchased this year.

28. ARCHAEOLOGICAL MUSEUM, KONARAK.—Apart from general maintenance, painting of the outer wall, polishing of pedestals, show-cases, etc., were taken up and com pleted.

29. ARCHAEOLOGICAL MUSEUM, KONDAPUR.—About two hundred coins were acquired for the Museum.

30. MUSEUM AND SARASWATI BHANDAR, KOTA.—The display arrangements were considerably improved.

31. STATE MUSEUM, LUCKNOW.—Only three antiquities were acquired for the Museum during the year under review. These consisted of terracottas of which the most significant is a big panel (44 x 28 x 7 cm.) containing the upper halves of Siva and Parvati (pi. LXXIV) standing side by side; the former occupying the left position, which is an unusual feature. Though the faces of both the divinities are damaged, the delineation of the body has been executed in the classical style. Siva is bedecked with *sarpa-kundalas* and *yajnopavita* while traces of a beaded necklace with a *vyaghranakha* or crescent in the centre are clearly marked around the neck, indicating the applique technique of ornamentation. He carries a snake-entwined trident in his left hand. The goddess, who, at first sight appears nude, is draped in a finely spun transparent saree clinging close to her skin.

Synchronizing with the 2500th *Nirvana* year of *Tirthankara* Mahavira, a two day seminar on Jain art was organized in the Museum in January 1972, accompanied by an exhibition of select Jain pieces from several Jain centres, tracing the origin and development of Jain art and iconography in various spheres. The most notable amongst the exhibits was the model of a Jaina *stupa* (pi. LXXVI A) which has been put up with the original art-pieces and plaster-cast copies.

The Terracotta Gallery which was being organized for the last several years was finalized and thrown open to public on March 31, 1972. It presents some interesting archaeological finds from Sonkh excavation and the development of terracotta art from archaic period to the post-Gupta age. The exhibits come from different sites and are arranged in an effective manner of display.

As usual, this year also the Museum Week was celebrated in the first week of January 1972, and various facilities for visitors were extended on this occasion.

32. ARCHAEOLOGICAL MUSEUM, FORT ST. GEORGE, MADRAS.—All the galleries except the Portrait Gallery were re-painted. The show-cases and pedestals were re-polished.

33. GOVERNMENT MUSEUM, EGMORE, MADRAS.—During the year under review, the following antiquities were acquired for the Archaeological Section of the Madras Govern ment Museum. Those acquired through Treasure Trove included one crawling Krishna, from Vellaya Konapatti, Manapparai Taluk, District Tiruchchirappalli; seven metal

figures—Nataraja, Somaskanda, Umasahita, Ganesa, Devi, Devi and Trident from Vaduvangudi, Nagapattinam Taluk, District Thanjavur; two metal figures of crawling Krishna from Jambagambalpuram, Papanasam Taluk, District Thanjavur; one Devi (metal image) from Agrathur, Kumbakonam Taluk, District Thanjavur; three metal figures—Devi, Manikkavachakar and Balasubrahmanya—from Saliamangalam, Papanasam Taluk, District Thanjavur; one stone image of Vishnu from Narasingampettai, Kumbakonam Taluk, District Thanjavur and one stone image of Mahavira from Ambattur, Saidapet Taluk, District Chingleput. The following objects, however, were purchased: one copper-plate grant from Shri T. Gubendran, Kanchipuram; five wood carvings from Shri Meikandamurti Koil, Nagapattinam, District Thanjavur; two wood carvings from Shri Satgunanathaswami Devasthanam, Idumbavanam, Tiruthuraipundi Taluk, District Thanjavur; two sets of charts showing the development of scripts from All India Educational Society, New Delhi; and two wood carvings from Tirumarainathaswami Devasthanam, Tiruvadavur, Melur Taluk, District Madurai. Quite a few were also obtained by gift: twenty-three paintings prepared during the second World Tamil Conference held in Madras, forty-three portraits of National Leaders, and Educationists and seventy-seven oleographs of Ravi Varma's paintings. The model (wood) of Gandhi Mandapa in Guindy was presented to the Museum by the Raj Bhavan, Guindy.

The existing trilingual labels for ten bays in the Sculpture Gallery were replaced by newly printed bilingual labels. The provision of painted labels for the exhibits in the Bronze Gallery was continued. The dancing Ganesa (metal) which was in the Reserve Collection was displayed in the Bronze Gallery. A special exhibition was organized in November 1971, when the portraits and oleographs presented by Shri K. V. Vaidyanathan were exhibited. Ten replicas of Natesa were prepared for sale.

The pillars in the Amaravati Gallery were provided with mosaic chips up to a height of about 2 m., to prevent the saline action on the pillars. The exhibits in the Metal Ware Gallery were re-arranged and given a better look after the flooring was re-done in mosaic.

34. ARCHAEOLOGICAL MUSEUM, MATHURA.—Thirty objects, including fifteen sculptures, six terracottas, one inscription, four seals and four paintings, were acquired during the period under review. Amongst these, the following sculptures are noteworthy: (i) a broken image of the Buddha (pi. LXXVB), wearing *ekansika sanghati* belonging to the Kushan period. The halo around the head of the Buddha has a scalloped border and emerges above the middle part of the body, the *ushnisa* and the *urna* both are carved and the head is shaven; (ii) fragment of a door-jamb belonging to the medieval period showing a four-armed standing Vishnu with conch and club in the upraised right hand, while other two hands are missing. The deity has been shown standing under a niche wearing a long *vaijqyantimala* and high *kirita-mukuta.* The interesting point of the sculpture lies in the presentation of two male figures, one standing on a crocodile while the other mounted on tortoise; (iii) a female figure seated on a wicker stool, right hand of which is damaged in two parts while the left rests on its left knee. The head of the figure is missing. Between the feet is an inscription, in Sunga characters, which reads:

1. *sa putehi karito*
2. *yakhi layaba kunikate*
3. *vasina nake \nakata/;*

(iv) more than half of a colossal parasol depicting various auspicious symbols and lotus petal decorations. Starting from the central hole and a wide plain rim, it has four decorative bands viz., lotus petal, twisted ropes, auspicious motifs and again large petals. The third

band, which is most interesting, represents the wheel with thirty-two spokes, full vase, a winged pot, oozing coins, lotus, bowl, *svastika,* winged conch, lotus and lastly, halo with scalloped border. This was obtained from the Geeta Enclave mound at Mathura; and (v) capital of a pillar showing lion, palm, fish-tailed crocodiles, corpulant male and two female figures on either side (pi. LXXV A). The upper portion of the sculpture is wanting. The same carving can be seen on the reverse side. This theme is unique from iconographic point of view. It is datable to *circa* first century A.D.

All the above mentioned sculptures were displayed in the galleries and were incorporated in the Hindi Guide Book accordingly.

35. GOVERNMENT MUSEUM, MOUNT ABU.—The detailed cataloguing of the recently collected sculptures from the nearby sites was taken up for proper documentation.

36. CENTRAL MUSEUM, NAGPUR.—During the year under report the work of repair and painting was carried out in Archaeology and Natural History Sections.

In the Natural History Section, thirteen big animals were received from the Forest Department at Nagpur. After giving chemical treatment, they were kept in the Reserve Collection. Six different types of birds, a big size python, a monkey couple, a group of tortoises, etc., were exhibited. In the Bird Gallery, the work of giving new sky-blue colour to the background of all the show-cases was taken up.

In the Archaeology Section, six photo-enlargements of the antiquities were fixed in alluminium frames. In this Section all the labels were replaced.

On behalf of Shri Chhatrapati Rajaram Art Society at Kolhapur, an exhibition of seventy-five selected paintings of late Shri Dalai was arranged in this Museum from 8th to 16th January, 1972.

From 30th January to 4th February 1972, an exhibition of thirty-four paintings, specially prepared on the Bangladesh Mukti Sangram by Shri Madhav Mengane, a young artist from Kolhapur, was held in the gallery of this Museum. This exhibition was inaugurated at the hands of Padmashri Shri Balasaheb Patil. The present exhibition was important from the cultural, artistic and national point of view. Many people from Kolhapur visited this exhibition.

The "Museum Week" was celebrated from 1st to 7th January, 1972. An exhibition of selected objects from the Reserve Collection was arranged on this occasion.

37. ARCHAEOLOGICAL MUSEUM, NALANDA.—Twelve sculptures, including a large-size Avalokitesvara with twelve hands were acquired. The beautiful panel showing Jambhala on one side and Umamahesvara on the other, which was recently acquired, has been displayed prominently in Gallery No. 1.

The outer walls of the Museum as well as the inner ones in some galleries were painted.

38. NATIONAL MUSEUM, NEW DELHI.—The National Museum, received on loan, from the Archaeological Survey of India, twenty-one sculptures belonging to various sites in Rajasthan. The exquisite figure of a Surasundari, engaged in the game of *kanduka-krida,* is an excellent example of medieval art of Rajasthan. Twenty-armed Vaikuntha Vishnu, riding a *Garuda pl.* LXXIIIB), is a rare icon from the point of view of Hindu iconography.

39. RAJA KELKAR MUSEUM, PUNE.—The work of cleaning and arranging was carried out in the Museum. Many objects, important from the archaeological, historical and artistic points of view were exhibited in this Museum. Particularly noteworthy are the musical instruments.

40. ARCHAEOLOGICAL MUSEUM, UNIVERSITY OF SAGAR, SAGAR.—A separate building for the Archaeological Museum, attached to the Department, was completed. The selected sculptures, terracotta figures, coins, inscriptions and other relics were exhibited in the Museum.

Two stone sculptures of the Kushan period, four sculptures of early Medieval period, eleven clay sealings, twelve terracottas from Kausambi and Ahichchhatra,and nine plaster-casts of sculptures were added to the collection. The coins collection of the Museum was enriched by the addition of forty copper tribal coins; fifty stone beads; thirty Kushan copper coins; ten early medieval copper coins; and fifteen early medieval silver coins.

41. ARCHAEOLOGICAL MUSEUM, SANCHI.—The main-hall and the Information-*cum*-Office Room of the Museum have been freshly painted and made presentable. Back ground casement cloth for the exhibits has been renewed in fourteen wall show-cases. Electric lines and installations at the Museum were thoroughly checked and made serviceable. Electrical fittings were provided in the thirteen show-cases of the Museum so as to highlight their exhibits. The cardboard ceiling of the main-hall of the Museum was repaired. The Eastern Pillar of the Southern Gateway *of Stupa-l* in seven pieces, hitherto lying in the old Museum on the hill-top at Sanchi, was brought down to the Museum. One hundred and fifty stone sculptures have been re-arranged in a separate Godown in a presentable manner. Index cards in duplicate have been prepared for the first two hundred and eight antiquities of the Museum.

Following sculptures have been added to the collection: (i) red sandstone trefoil *gavaksha-window,* showing beaded border with two lotuses, floral scrolls, and a circular niche in centre. This niche presents a three-headed and four-armed figure of Brahma with matted hair and seated cross-legged on a bow-shaped double lotus. An *angavastra* goes across his chest and back from left shoulder. The legs have *a yogapatta* around them. The lower arms are gone. The upper right arm holds lotus, and the upper left arm a *danda.* The sculpture is partly damaged, (size: 45 x52 x7-5 cm.); (ii) highly glazed, buff-coloured, sandstone fragment of a Mauryan (third century B.C.) umbrella (size: 7x6 x 3 cm.); and (iii) lamp-shaped stone-base of a pillar, showing inverted lotus mounted by an *amalaka* which has a square groove in its centre. On two sides of this groove runs an inscription in late medieval Devanagari script reading *"Chella Suvamsu Palah."* The painted side bears two small grooves for clamps.

Besides, three architectural fragments ranging from the Mauryan to the late medieval periods were acquired. The sculptures in the Reserve Collection were re-arranged so as to facilitate study by scholars.

42. ARCHAEOLOGICAL MUSEUM, SARNATH.—Re-painting of all the galleries, except No. 5, has been completed. Documentation of antiquities in the Reserve Collection is in progress.

43. SHRI CHHATRAPATI SHTVAJI MAHARAJ MUSEUM, SATARA.—The project of removing the wall paintings from the Jayarama Swami Math was taken in hand. The

contemporary monument is of Shivaji. Four large-sized and thirteen small-sized wall paintings were removed and brought to the Museum. These paintings show scenes from the *Bhagavata, Ramayana* and the *Puranas.* The style of paintings appears distinctly Maratha.

This year, three Shivarai coins and three coins of the Muslim rulers, two textile pieces with design, and painting of Vishnu on a small card were received in this Museum as donation.

44. ARCHAEOLOGICAL MUSEUM, SRIRANGAPATNA.—All the labels were re-written in three languages, viz. Kannada, Hindi and English.

The large-size oil paintings in this Museum were provided with new velvet background to increase the effectiveness of display. Five hundred and ninety-seven copper coins were acquired.

45. TER MUSEUM, TER.—Labels were prepared for all the exhibits. Arrangements were also made to keep big stone objects on wooden stands.

The wooden door-frames of the Uttaresvara temple at Ter were chemically treated.

46. THE ARCHAEOLOGICAL MUSEUM AND PICTURE GALLERY, TRICHUR.—The various types of pottery vessels collected from the megalithic caves and cists in different parts of the State had been properly cleaned and mended wherever necessary. They have now been displayed with bilingual labels.

An Epigraphy Gallery, showing the evolution of Vatteluttu script in Kerala from eighth to tenth centuries A.D. with charts of the Indian scripts like Brahmi, Kharoshthi, etc., side by side has been started in a separate section for comparative study. A guide book for the Museum is also under preparation.

47. PRATAP SANGRAHALAYA, UDAIPUR.—With a view to displaying the local folk-art and -craft, a coloured set of the folk- gods and -goddesses of village Molela, District Udaipur, was purchased. A wooden icon of Gangaur, decorated with clothes and jewellery, was also purchased for display of the wood-craft of village Bassi. More than two thousand paintings were mounted for better display and preservation.

48. MUSEUM AND PICTURE GALLERY, VADODARA.—The following acquisitions were made for the Museum: (i) a schist stone image of Lakshmi-Narayana (pi. LXXVII), standing in *tribhanga* pose, from Kashmir, *c.* eighth century A.D.; (ii) a bronze image of ten-handed Ganesa, probably from Rajasthan or Gujarat, *c.* fourteenth century A.D.; (iii) a copper image of Surya, probably from Karnatak of *c.* seventeenth century A.D. ; and (iv) a painted wooden box from Surat or Billimora, of *c.* seventeenth-eighteenth century A.D.

In the Numismatics Section, four billon coins of Muhammad Bin Tughluq III, Firuz Tughluq with Fathkhan, Ibrahim Shah, and Mahmmad Shah of Jampur and ten copper coins of Muhamad Adil Shah Sur, Firuz Shah Bahmani, Adam Shah I, Muhamad Bin Humayun, Muhamad Bahmani, Wall Ullah Shah, Kalim Ullah Shah, Ibrahim Shah, Muhamad Shah and Hussain Shah were added. In addition to this, eight silver coins of Maharaja Balvant Singh, Surat Singh, Sardar Singh and Dungar Singh of Bikaner; Akhai Singh and Ranjit Singh of Jaisalmer; Prithivi Singh and Zalim Singh of Jhalawar were also acquired.

A set of twenty terracottas from Mathura were added to the terracotta collection of the Museum.

A special exhibition on "Siva in Sculpture and Paintings" (pi. LXXVI A) was organized during this year. Selected sculptures in stone, bronze, wood and ivory, and paintings in which Siva is depicted were on display. It was a thematic exhibition with dramatic presentation, and because of its great popularity it was extended further by a month.

49. ARCHAEOLOGICAL MUSEUM, VAISHALI.—All the objects, exhibited in the old Museum by the Vaisali Sangha, have been acquired. Accessioning of the antiquities is now in progress. A temporary Photographic Exhibition was organized in connexion with the Mahavira Jayanti on the 27th March, 1972.

50. BHARAT KALA BHAWAN, VARANASI.—Two hundred and twenty-one coins were collected for the Museum. These include gold coins of Sharki dynasty of Jaunpur, copper and silver coins of Shah Alam II, silver coins of Akbar, Jhad Shahi silver coins of Jaipur and copper coins of the East India Company. Several current coins of Burma, Canada and Nepal were also acquired.

The Bhawan also acquired a good number of sculptures and terracotta figurines during the year under review. Of the collected sculptures and terracottas mention may be made of the following: *prasadika* (defaced) of the Sunga period (Mathura); a hoard of twenty-three Mathura sculptures mostly of the Kushan period; pillar-capital, showing adorned winged lions of the Sunga period; a lot of eighty-five stone fragments in the Bharhut style; ring-stone with Mother Goddess and geese of the Maurya period, possibly from Kausambi; mould with *srivatsa* symbol of the Gupta period; Siva riding a bull of the Late Gupta period; lovers of the Sunga period; bust of Maitreya of the Late Kushana period; Yamuna, of the Gupta period, from Mathura; and *darpana* Gauri of the Gupta period.

51. ARCHAEOLOGICAL MUSEUM, VELHA GOA, GOA.—Three sculptures, including a 'hero-stone', were added to the Museum's collection.

The re-organization of the Sculpture Gallery in the ground-floor was completed by arranging separately architectural pieces, Arabic inscriptions and Portuguese coat-of-arms. A general introductory label has also been provided for the benefit of visitors.

ARCHITECTURAL SURVEY OF TEMPLES

NORTHERN REGION.—The Temple Survey Project, Northern Region, under Shri M. D. Khare, made further progress in the preparation of a monograph on the pre-Gupta temples. For a proper perspective, a comparative study of early temples at Nagari, District Chitorgarh, Bairat, District Jaipur and the Hellenistic temple at Jandial, Taxila (Pakistan), the recently-excavated remains of Vaishnava temple at the well-known site of Besnagar, District Vidisha, and the temples at Deogarh, District Jhansi, Pali, District Sagar, Thubon, District Guna and Banswada, District Ratlam was also made.

The discovery of an inscribed pillar of the Sunga period on a mound in the outskirts of village Amalesvar, District Mandasor, indicating the existence of another Bhagavata (Vaishnava) temple of *circa* second century B.C. was also duly noted in this regard.

SOUTHERN REGION.—The Temple Survey Project, Southern Region, under Shri H. Sarkar, conducted surveys of: (i) temples in the North Kanara and South Kanara Districts of Mysore; and (ii) some temples of early Telugu-Cholas of Renandu, besides studying the rock-cut cave at Tiruppangili in Musiri Taluk of District Tiruchchirappalli, Tamil Nadu. The results of these surveys may be summarized as follows:—

(i) *Temples of the North Kanara and South Kanara Districts.*—To trace the distribution of the Kerala style of temples further north along the west coast, some temples were surveyed in the Districts of South Kanara and North Kanara, in Mysore State. The region, sometime in the thirteenth-fourteenth century, seems to have evolved a style of its own as typified by the Bhatkal (pi. LXXVIII A), Hadavalli, Karkala and the Mudabidri groups of temples. These are all-stone temples, invariably four-sided on plan, with pyramidal, hipped or flat-slab-roofs. Some temples at Mudabidri have, however, Kerala type of roof. Sloping stone-roofs have been constructed of large granite slabs with overlapping edges, supported by beams with four channels, as their upper surfaces are channeled to let out rain-water percolating through the joints. In most cases, barred screens of stone enclose the entire temple perhaps as an additional protective measure against the heavy downpour. Even the flat-slab-roofs, whose joints have cover-stones with a convex profile, are connected with deeply projecting eaves, also made of overlapping stone-slabs. The temple of Jattappa Nayakan Chandranathesvara at Bhatkal, the Chandranatha temple at Hadavalli and the Chaturmukha Basti at Karkala belong to this category. Such temples with flat roofs, functional eaves and, in many instances, stone screens seem to have derived some pf these features from an early Chalukyan tradition represented by the Lad Khan temple at Aihole.

It is significant to note that this type of all-stone temple, which takes after some old timber tradition, is absent in Kerala. It occurs, no doubt, in South Kanara alongside the Kerala style of temples, but the latter is decidedly the dominant, and chronologically the earlier tradition. The Kotinathesvara temple at Koteswar, in Coondapoor Taluk, South Kanara, represents an amalgam of the two traditions, for an earlier Kerala style of temple, built of laterite blocks, is found enclosed by stone-screens supporting functional eaves, made of over-lapping slabs. Perhaps this co-existence started from about the fourteenth century. The District of South Kanara of Tulunadu seems to be the meeting ground of different architectural styles, for, besides the two traditions mentioned above, the region also has a few temples such as the Manjunatha temple at Kadre and the Ganapati shrine at

Ullal (pl. LXXIX A) built in typical south Indian or Dravida style. To this may be added the stepped pyramidal temples of the Chalukyan type, as seen in the Senesvara temple at Bainduru.

Not much is known about the beginning of temple architecture in the Tulu country', although it is known for certain that the early Alupas, who patronized Saivaism, ruled over this region from at least the middle of the seventh century, if not earlier. Their capital-city, Udeyapuranagara, the modern Udiyavara, near Udipi, has a number of temples in Kerala style but most of them have undergone renovation. However, at least two temples from this place may be dated to the tenth-eleventh century. One of them is the old Brah-malingesvara temple (a new temple has been built in the same compound), a small *sandhara vimana* built of laterite blocks. It is square on plan and encloses a square *garbhagriha* with a circumambulatory path all round. The superstructure of the *garbhagriha* has fallen down but the presence of *kapota* with *kudus* may indicate that it had a *sikhara.* The *namaskara-mandapa* and the *nalambalam* are in complete ruins. Stylistically, the temple may be dated to the tenth-eleventh century. The ruined temple on the Shambhukal, a low hillock, may be dated to the same period, although there are indications of the existence of an earlier nucleus in complete ruins at the site. On plan, it is comparable to the Parasuramesvara temple at Attirala, in District Cuddapah, Andhra Pradesh, because both are apsidal internally though oblong in the exterior. Two small records on the rock near the ruined temple have been dated palaeographically to the eighth century. Compared to Kerala, the Tulu country appears to be rich in apisdal temples noticed at places like Udipi, Barkur, Brahmavar, Kota (pl. LXXVIIIB) and Suratkal. On the other hand, circular shrine, so common in Kerala is rare in this region. It seems that the apsidal shrines on the West coast have a north to south distribution, while it is just the reverse in the case of the circular ones.

(ii) *Some temples of the Early Telugu-Cholas.*—The ancient territorial division known as Renandu was ruled by the Telugu-Cholas, whose inscriptions, ranging in date from the sixth to the ninth centuries, have been discovered in different parts of the Districts of Anantapur and Cuddapah, Andhra Pradesh. So far no structural temple has been ascribed to this line of rulers despite the fact that the contents of several of their inscriptions indicate their patronage to the Brahmanical religion. A few temples, associated with the early records of the Telugu-Cholas in the Kamalapuram Taluk of District Cuddapah, were surveyed with a view to studying their architectural features. Most of the temples have undergone alteration but the Agastyesvara temple at Chilamakuru has retained most of its architectural features save some additions in the interior during the later Chalukyan times when the portico was also added. Its superstructure is completely lost but one can easily visualize its orginal form from well-preserved subsidiary shrine, dedicated to Ganesa, situated close by.

Both the Agastyesvara and the Ganesa shrines are apsidal externally and oblong internally. In the axial arrangement, they show a *garbhagriha* and a closed *mahamandapa.* The absence of *antarala* or *ardhamandapa* in the complex is noteworthy. They have identical type of *adhishthana* consisting of *upana, jagati, padma* of the Chalukyan tradition and *prati.* This is a rather uncommon *adhishthana* in the Pallava and the early Chalukyan styles, although similar type is noticed in the Rashtrakuta monolithic temple, Kailasa, at Ellora, the apsidal shrine in the Papanasam group, near Alampur, the subsidary apsidal shrine to the north of the Ramalingesvara temple at Satyavolu (pl. LXXIX B), District _Kurnool and the apsidal Tirunagesvara temple at Kalambakkam, District .Chingleput. A *pranala,* which is just a channelled stone, comes out of the lowest moulding. The *bhitti* is entirely plain and slabs of Cuddapah quartzite have been used extensively. In the smaller

Ganesa temple, at Chilamakuru (pl.. LXXX B), the *prastara,* with a conspicuous *kapota, griva* and a *hastiprishtha sikhara* are intact. In many respects the Ganesa temple is similar to the small all-stone shrine at Satyavolu in District Kurnool, datable to the seventh century on palaeographical evidence. All this clearly shows that stylistically the temples at Chilamakuru can easily be dated at least to the eighth century. Yet these temples partake of features shared by a number of temples and may not have any distinctive idiom which can be ascribed to the Telugu-Cholas. At the same time, there cannot be any doubt that Chilama-kuru—Chirumburu of the early inscriptions—was one of the headquarters of the Telugu-Cholas. A mutilated inscription of *circa* A.D. 700 on a pillar, now in the Government Museum, Madras, that once stood in front of the Agastyesvara temple, records the gift of some land, in the reign of Vikramaditya Chola-Maharajul, when the queen Chola-mahadevul, with Uttamaditya as *samanta,* was ruling at Chirumburu or Chilamakuru. Though it is not clear, it may be presumed that the gift of land had been in connexion with the maintenance of the Agastyesvara temple. In the circumstances, the authorship of this complex may be ascribed to the Telugu-Cholas, but it cannot be taken as their characteristic example, for no other temple associated with their early inscriptions conforms to it.

The Ramalingesvara temple at Rameswaram, near Prodatur in Prodatur Taluk, the Chennakesavasvami temple at Kalamalla, Chennakesavasvami temple at Veludurti (pi. LXXX A) and the Chennakesavasvami temple at Erragudipadu, all situated in the Kamalapuram Taluk of District Cuddapah, have yielded inscriptions of the early Telugu-. Chola rulers. However, while the brick-built superstructures of these temples are undoubtedly late, their layout, type of *adhishthana* and the method of wall-construction indicate an earlier date, and, on circumstantial evidence based on inscriptions, they may possibly be ascribed to the Telugu-Cholas of Renandu. A few characteristics of this group may be summarized as follows:—

Originally, these were stone-temples made of large-sized slabs, and the locally available Cuddapah stones have been used extensively in their construction along with the granite. Walls, except in the Erragudipadu temple, which is definitely a later renovation, are absolutely plain and unrelieved. Compared to the *adhishthana,* the height of the wall is very low. For instance, the Chennakesava temple at Veludurti has an *adhishthana* of about 1-12 m. height, while the *bhitti* rises to a height of only 1*14 m. In the *adhishthana* mouldings, *padma* of the Chalukyan tradition is present along with the *tripatta-kumuda* and thick *pattika.* But the *kapota-bandha* type of *adhishthana,* so common in the Chalukyan tradition, is not found in this group. In most of the temples, the *pranala* is just a simple channelled stone for letting out the *abhisheka* water, a type which continued till about the s ninth century. It is interesting to note that the majority of the temples face west; the temple at Veludurti, however, faces south, which too is an unusual feature. Axially, these temples have a square *garbhagriha,* an *antarala,* and open pillared *mahamandapa* with parapets all round. The pillars are arranged in rows dividing the space into several bays, a feature commonly noticed in the Pallava tradition. Even the pillars are simple without any defined capital components. But they have realistic *kumbha* carrying a *phalaka,* crowned by four-armed *taranga* corbels as in the middle rows of the *mahamandapa* of the Chennakesava temple at Veludurti.

(iii) *The rock-cut cave at Tiruppangili.*—An early rock-cut cave at Tiruppangili, whose existence was forgotten despite its discovery in 1938-39 by two epigraphists, was also surveyed. Situated within the present Nilivanesvara temple-complex of Chola origin, the cave-temple was excavated on the vertical scarp of a low outcrop of streaked variety of granite, peculiar to the locality. It consists of a square *garbhagriha,* a narrow *antarala*

and a *mahamandapa.* On the back wall of the *garbhagriha* is carved a large panel of Somaskanda (pi. LXXXI A), depicting Parvati as seated to the right of Siva who holds the *mriga* in the upper right hand and a *valqya* in the upper left; Siva's right foot tramples on *apasmara-purusha.* In all the known panels of Somaskanda and Uma-Mahesvara of the Pallava and the Pandya tradition, Parvati is shown seated to the left of Siva. Thus, the Somaskanda relief at Tiruppangili presents a unique feature, and also differs from the other examples including the one noticed on the architrave of the *garbhagriha* of the Jalanathes-vara temple at Takkolam (pl.. LXXXI B) in several other details. In the Tiruppangili relief, Skanda is shown as a standing figure, a feature uncommon in the plastic representation. Stylistically, the relief may be dated to the eighth-ninth century and, as it is located in the ancient Muttaraiyar territory, its authorship may be attributed to some Muttaraiyar ruler.

VIH. PRESERVATION OF MONUMENTS

MONUMENTS OF NATIONAL IMPORTANCE

CENTRAL CIRCLE

Madhya Pradesh

1. FORT, ATER, DISTRICT BHIND.—Debris was cleared to expose the hidden structures in the palace area.

2. ROCK-CUT CAVES, BAGH, DISTRICT DHAR.—The debris in Cave no. 6 and in between Cave nos. 3 and 4 was removed.

3. GADASHAH'S PALACE, MANDU, DISTRICT DHAR.—The whole area in front of the palace was made presentable by removing debris and vegetation. The roof was made water tight by relaying the concrete terracing.

4. JAHAZ MAHAL, MANDU, DISTRICT DHAR.—A parapet-wall was erected on the edge of the roof.

5. KAPUR TALAO, MANDU, DISTRICT DHAR.—The approach-roads and the area around the monument were re-conditioned and made presentable. The floor of the octagonal pavilion was re-laid in fresh lime concrete.

6. FORT, ASIRGARH, DISTRICT EAST NIMAR.—The long pathway from the Malayagarh gate was provided with stone pitching. The breast walls were restored at places. Approach roads to the monuments were re-conditioned.

7. MAHADEVA TEMPLE, ASIRGARH, DISTRICT EAST NIMAR.—The Dharmasala attached to the temple was re-conditioned and is being repaired.

8. AHUKHANA, BURHANPUR, DISTRICT EAST NIMAR.—In continuation of last year's work {*1970-71,* p. 85), the fallen portion of the compound-wall was restored and the decayed floor concrete of the *baradari* was replaced.

9. BIBI SAHIB'S MASJID, BURHANPUR, DISTRICT EAST NIMAR.—The compound-wall was raised and the top was water-tightened.

10. PALACES, MAHAL GURARA, DISTRICT EAST NIMAR.—Patch repairs and pointing were undertaken in the palaces.

11. BADA MADRASA, CHANDERI, DISTRICT GUNA.—The sunken stone pavement was re-set.

12. BADAL MAHAL GATEWAY, CHANDERI, DISTRICT GUNA.—The open area around the monument was paved with flag-stones.

13. JAMI MASJID, CHANDERI, DISTRICT GUNA.—The sunken stone pavement of the courtyard was re-set and decayed pieces were replaced by new ones.

14. KUSHAK MAHAL, CHANDERI, DISTRICT GUNA.—The inner base was water-tightened by providing stone pavement.

15. SHAHZADI-KA-RAUZA, CHANDERI, DISTRICT GUNA.—The area around the Rauza was paved with flag-stones.

16. MANSINGH'S PALACE, FORT, GWALIOR.—The uneven surface of roof concrete was treated with a layer of thin lime mortar.

17. ROCK-CUT JAINA COLOSSI, GWALIOR.—In continuation of last year's work *{1970-71,* p. 85) dry stone pitching was provided at places in the earthen platform.

18. TELI-KA-MANDIR, GWALIOR.—The base of the temple, all along the adjoining area, was water-tightened.

19. TOMB OF MUHAMMAD GHAUS, GWALIOR.—The compound-wall was raised at places to check trespassing. The decayed concrete on the roof of the Jami Masjid was replaced.

20. CHAUSATH YOGINI TEMPLE, BHERAGHAT, DISTRICT JABALPUR.—The area around the circular colonnade was paved with stones.

21. RECTANGULAR MOUND, TEGOWA, DISTRICT JABALPUR.—Architectural fragments and sculptures lying scattered were arranged properly.

22. BUDDHIST MONUMENTS, SANCHI, DISTRICT RAISEN.—Cultural Notice-Boards were put up and fencing-work is in progress.

23. FORT, GARHPAHRA, DISTRICT SAGAR.—A stone pitched approach-way from the fort on the hill, connecting the main road, was provided.

24. FORT, RAHATGARH, DISTRICT SAGAR.—The decayed wooden beams of Rani Mahal were replaced and wire-mesh doors and windows provided. Approach roads to the various monuments were laid.

25. MONASTERY, TERAHI, DISTRICT SHIVPURI.—The accumulated debris was cleared for exposing the structures.

26. JAINA TEMPLE, BADOH, DISTRICT VIDISHA.—The bulged and deteriorated outer walls of the temple-complex were dismantled and re-built. Dry masonry enclosure was provided around the temple.

27. ATHKHAMBA, GYARASPUR, DISTRICT VIDISHA.—The sunken platform around the temple was re-laid and the area enclosing the monument was provided with a dwarf masonry wall to check encroachment of the land.

28. MALADEVI TEMPLE, GYARASPUR, DISTRICT VIDISHA.—In continuation of last year's work *(1970-71,* p. 86) a retaining wall was built to a height of 4.5 metres.

29. BIJAMANDAL MOSQUE, VIDISHA.—The area around the Mosque was enclosed with barbed wire fencing.

Rajasthan

30. OLD TEMPLES, JHALRAPATAN, DISTRICT JHALAWAR.—The area around the temple-complex was paved with stone slabs.

EASTERN CIRCLE

Assam

31. AHOM RAJA'S PALACE, GARHGAON, DISTRICT SIBSAGAR.—Due to earthquake in July 1970, the staircase was completely dislodged and the eastern wall of the palace was severely damaged. The dislodged portions of the staircase were provided with concealed R.C.C. tie-beams and the entire staircase and landings were re-built. Besides plastering and pointing, the parapets and arches supporting the stairs were renovated in conformity with the original work. The work is in progress.

32. SIBDOL, SIBSAGAR.—A concealed galvanized pipe was provided through the wall from the *garbhagriha* to prevent stagnation of water usually poured on the Sive *linga.*

Minor works like pointing, grouting, jungle clearance, etc., were also attended to at the following other monuments in the District: Gaurisagar group of temples, Gaurisagar; Jayasagar group of temples, Jayasagar; Karenghar palace, Jayasagar; the Siva temple at Neghereting and Sibsagar group of temples, Sibsagar.

Orissa

33. MONASTERY NO. 1, RATNAGIRI, DISTRICT CUTTACK.—In continuation of last year's work *(1970-71,* p. 87), the decayed brick masonry was re-laid with old bricks using lime cement mortar.

34. GROUP OF TEMPLES, BHUBANESWAR, DISTRICT PURI.—Besides filling-up of the cracks and crevices, an expanded metal door was fixed at the entrance of the Bhaskaresvara

temple. The fallen and damaged portions of *the jagamohana* of the Maitresvara temple were repaired. Cultural Notice Boards in English, Hindi and Oriya were fixed at Meghesvara, Brahmesvara and Bhaskaresvara temples.

35. ASOKAN ROCK EDICT, DHAULI, DISTRICT PURI.—A Cultural Notice Board in English, Hindi and Oriya was fixed.

36. ROCK-CUT CAVES, KHANDAGIRI-UDAYAGIRI, DISTRICT PURI.—The cracks inside the caves were repaired and the roof was treated with cement mortar for easy flow of rain water. The work is in progress.

37. SUN TEMPLE, KONARAK, DISTRICT PURI.—Four binoculars were provided for the public to obtain a clear and enlarged view of the images at the top.

West Bengal

38. GROUP OF TEMPLES, GUPTIPARA, DISTRICT HOOGHLY.—In continuation of last year's work *{1970-71,* p. 87) at Brindaban Thakur's temple on top of the *sikhara,* the ornamental plaster work in the porch and pillars were completed as per the original. Besides removing rank vegetation and changing the worn out beams of the *natamandir,* the roof was re-laid with double layers of tiles. Some minor repairs were also carried out.

The bulged portion of the porch of Krishnachandra Temple was fixed with a tie-rod. Besides minor repairs, a new door was provided to the temple and the *pradakshinapatha* was re-terraced with lime mortar.

The damaged porch of Sri Gauranga temple was repaired and underpinning of the pillars and walls carried out.

Further repairs to the compound walls were completed.

39. MINAR, PANDU, DISTRICT HOOGHLY.—A lightning conductor was fixed.

40. TOWER OF NIMASARAI, MALDA.—Besides minor repairs, a dwarf wall was constructed at the top of the *minar* above which a barbed-wire fencing was also provided.

41. ADINA MOSQUE, PANDUA, DISTRICT MALDA.—The scattered stones around the monument were removed and minor repairs carried out.

42. QUTB SHAHI MOSQJJE, PANDUA, DISTRICT MALDA.—The work of recessed pointing was carried out in the interior as well as the exterior of the monument.

43. BHAVANISVARA TEMPLE, BARANAGAR, DISTRICT MURSHIDABAD.—Besides under taking plaster work on the inner surface of the outer wall, the damaged *pradakshinapatha* was re-laid with lime concrete. A wire-net ceiling was provided in the sanctum to prevent access of bats, etc. Minor repairs were also carried out.

44. CHAR-BANGLA TEMPLE, BARANAGAR, DISTRICT MURSHIDABAD.—The walls of the temple were plastered and the pathway around it was re-laid with lime concrete. Besides some minor works, the door and cornice mouldings were repaired.

45. KHANA-MIHIRER-DHIPI, BERACHAMPA, DISTRICT 24-PARGANAS.—A Cultural Notice Board was fixed.

FRONTIER CIRCLE

Jammu and Kashmir

46. EXCAVATED REMAINS, BURZAHOM, DISTRICT KASHMIR NORTH.—With a view to preserving the excavated remains *in situ* in the southern sector of the mound from the effects of snow and rain, construction of a suitably-designed shed with masonry pillars and lintels, surmounted by wrought wood-work and shingle roof, was undertaken and completed.

47. BUDDHIST REMAINS, HARWAN, DISTRICT KASHMIR NORTH.—The out of plumb and crumbling portion of the diaper pebble-cum-rubble wall on either side of the prayer hall was dismantled and re-erected in a combination-mortar in conformity with the original.

During the course of dismantling the diaper-pebble wall of the apse portion the *pradakshinapatha* round the *chaitya* was revealed for the first time. The work is in progress.

The shed erected for the preservation of the ornamental tiles *in situ (1968-69,* p. 92) towards the south of the apsidal *chaitya* was provided with welded wire-mesh screen on all the sides to safeguard the valuable tiles from theft and pilferage.

48. AVANTISVARA TEMPLE, AVANTIPUR, DISTRICT KASHMIR SOUTH.---------In order to prevent access of rain-water and consequent waterlogging of the low-lying precincts of the temple-ruins from the higher catchment area to the east of the temple, a masonry drain has been provided on all the sides of the temple. Major portion of the work on drain has been completed. The work is in progress.

49. DERA TEMPLE, BABORE, DISTRICT UDHAMPUR.—The bulged and dislodged ashlar-masonry of the plinth of this important *trikuta* temple (pls. **LXXXII A and B**) was carefully taken out and re-set in combination mortar in conformity with the original, after grouting the cracks and filling the cavities in the masonry.

MID-EASTERN CIRCLE

Bihar

50. RUINED FORTRESS, NANDANGARH, DISTRICT CHAMPARAN.—The well-known multi-angular *stupa* was cleared of rampant vegetation. In addition, loose bricks were taken out and re-set in the north-eastern corner. Recessed pointing in lime was also done to stop growth of further vegetation.

51. EXCAVATED REMAINS, NALANDA, DISTRICT PATNA.—The exposed tops of the walls of Monasteries 1A and 4 were water-tightened. Patches of brick-work, damaged due to heavy rains, were repaired. Recessed lime pointing was done in Temple No. 2.

52. MANIYAR MATH, RAJGIR, DISTRICT PATNA.—The damaged lime concrete floor in the passage around the brick structure was re-laid. The loose top layers of other brick structures were re-set in position.

53. SHELL INSCRIPTION, RAJGIR, DISTRICT PATNA.—The damaged rubble stone masonry compound-wall was reconstructed.

54. SHER SHAH'S TOMB AND TANK, SASARAM, DISTRICT SHAHABAD.—The collapsed retaining wall and the drain on the eastern side of the tank was partially reconstructed.

Uttar Pradesh

55. EXCAVATED REMAINS, PIPRAHWA, DISTRICT BASTI.—The structures exposed during last year's excavation *(1970-71,* p. 37) were properly preserved by way of pointing and water-tightening.

56. BUDDHIST REMAINS, KUSHINAGAR, DISTRICT DEORIA.—Fresh lime concrete was laid on the pathways in front of the Nirvana temple. The main road leading to the temple was also repaired. The damaged brickwork on the platform of the Nirvana temple was also repaired.

57. RAMABHAR STUPA, KUSHINAGAR, DISTRICT DEORIA.—In continuation of last year's work, *(1970-71,* p. 87) the remaining work of taking out and re-setting top layers of brickwork in lime mortar was completed.

58. SHAHI FORT, JAUNPUR.—Owing to heavy rains and floods in the Gomti river, one of the bastions on the north-west corner had collapsed, leaving the balcony above in an overhanging position. The bastion was reconstructed in its original form (pl. LXXXIII A and B). Pointing work was also done on the adjoining bastion so as to stop further decay.

59. CHAUKHANDI STUPA, SARNATH, DISTRICT VARANASI.—The decayed portions were recess-pointed in lime and underpinned. Fresh lime concrete was laid on the roof.

60. DHAMEKH STUPA, SARNATH, DISTRICT VARANASI.—A portion of the famous brick *stupa,* which had collapsed owing to heavy rains, was repaired. The overhanging portions of its brick-core at the top were given support by underpinning (pl. LXXXIV).

61. EXCAVATED REMAINS, SARNATH, DISTRICT VARANASI.—The exposed tops of walls of the monasteries and votive *stupas,* etc., were water-tightened. In addition, recess-pointing and underpinning of decayed patches of brickwork and strengthening the overhanging structures with lime concrete were carried out.

62. LAL KHAN'S TOMB, RAJGHAT, DISTRICT VARANASI.—Fresh lime-plaster was laid on the roof of the corner *minar* near the road.

NORTHERN CIRCLE

Madhya Pradesh

63. GROUP OF TEMPLES, KHAJURAHO, DISTRICT CHHATARPUR.—The sunken and bulged portion of the Lakshmana temple having mouldings, carvings and sculptural bands on the northern side wall of the platform, were taken out completely and re-set after strengthening the foundation with cement-concrete bedding. The stone pavement on the platform on the northern side were taken out and re-set in original position after providing proper slope for drainage.

The expanded-metal shutters fixed in the openings of the doors and balconies of all the temples in the western group were re-painted, matching the colour of the stone.

The work of replacement of low barbed wire fencing to two-metre height on angle iron posts in all the temples of Khajuraho has been completed. The roads and inspection paths of all the temples of Khajuraho were reconditioned and red gravel was spread.

Uttar Pradesh

64. AGRA FORT, AGRA.—Extensive repairs were carried out in the wing-walls of the rampart road leading to southern Naubat Khana by way of underpinning and pointing open joints of masonry. The surface of the spouts were plastered for proper drainage. The decayed and weak plaster on the gate and the bastions was removed and fresh plaster coat was given.

The underground rooms and passages from the Khas Mahal to the Jahangiri Mahal were underpinned and pointed. Wide and deep joints of red stone facing were pointed with lime cement stained mortar. Ventilators were provided with stone grilled frames. The ceiling of the Sheesh Mahal alongwith its geometrical patterns was plastered with a special lime. The cracked and broken *chhajja* north of Anguribagh was replaced with a new one. A few exfoliated stone flags of Anguribagh in front of Sheesh Mahal, and steps of the Diwan-i-Am were replaced.

The arcade of the Naubat Khana and the *dalans* were provided with expanded metal to house the water cooler and the wash basin.

65. ROMAN CATHOLIC CEMETERY, AGRA.—The work of providing a retaining wall in the Roman Catholic Cemetery has been completed.

66. TAJ MAHAL, AGRA.—Pointing of the wide open joints in the stone pathways leading from the main gate to the mausoleum and replacement of decayed lime concrete on the first floor of main mausoleum was undertaken. Pointing of wide-open joints in the marble terrace of the main mausoleum was completed.

67. GROUP OF MONUMENTS, FATEHPUR SIKRI, DISTRICT AGRA.—The decayed lime concrete flooring near Jodhabai's Palace was replaced by new red sandstone pavement.

The fallen and broken *chhajja* of the Ankh Micholi and the Panch Mahal were replaced. The work of widening the roads inside the monuments is in progress. Mosaic flooring was done in the remaining three rooms of the Dak Bungalow.

68. AKBAR'S TOMB, SIKANDARA, DISTRICT AGRA.—The decayed flagstone flooring leading from the main gate to the mausoleum was replaced including pointing the wide open joints. Natural light through the ventilators in the grave chamber of Akbar's tomb was improved by surface treatment.

69. GROUP OF TEMPLES, JAGESHWAR, DISTRICT ALMORA.—The work of constructing the retaining wall on the river-side of Jageshwar temples has been commenced. The work is in progress.

70. RESIDENCY BUILDING, LUCKNOW.—The fallen portion of the compound wall of Residency building was restored.

71. EXCAVATED SITE, KASHIPUR, DISTRICT NAINITAL.—The excavated trenches have been filled with earth to drain off the water. The top layer of the exposed structures was made water-tight.

NORTH-WESTERN CIRCLE

Delhi

72. DARYA KHAN'S TOMB, DELHI.—The damaged random-rubble masonry enclosure wall was reconstructed and the circular bastion and the steps on the eastern side of the tomb taken up for repairs after removing the overlying debris and vegetation growth.

73. JAMI MASJID, DELHI.—The decayed sections of the roofs, soffits of the dome, etc., were dressed towards the eastern gateway. The crevices and joints in the walls and the ceiling of the red sandstone mosque were pointed with lime cement mortar exactly similar to the original. The walls and the ceilings were washed and cleaned.

74. KASHMERE GATE, DELHI.—The cracks in the city wall were pointed and the cells therein cleaned.

75. KHAIRUL-MANAZIL MOSQUE, DELHI.—The foundation trenches were filled in with cement concrete for making subgrade for rubble stone masonry. The rubble stone masonry was pointed with cement mortar.

76. KOTLA FIROZ SHAH, DELHI.—The vegetation growth on top of the walls and path-ways was removed.

77. MOHAMMADPUR TIN BURJI, DELHI.—The arched openings of some of the chambers were closed with the rubble masonry and the encroachments removed.

78. MUMTAJ MAHAL, DELHI.—Electric fittings were provided in Mumtaz Mahal making chases in the walls. Decayed plaster was removed and fresh one applied.

79. RED FORT, DELHI.—Red *bajri* was spread over the roads and pathways.

80. QUTB, NEW DELHI.—In continuation of the previous year's work (*1969-70,* p. 89) the car-park outside the Qutb has been completed and a parapet wall with railing above it has been provided around the office. The lavatory blocks were repaired and white glazed tiles were provided in the floor and walls. Steel railing was also provided around the lawns. Water cooler was provided for the convenience of the visitors. The M. S. grills around the Conservation Assistant's Office, Car-park and cycle stand were painted.

81. HAUZ KHAS, NEW DELHI.—The broken and craked floors of one of the *baradaries* were demolished and re-laid with fresh cement lime concrete. The broken portion of the compound wall on the southern side has been reconstructed and pointed with concreted mortar matching with the original. The damaged water storage tanks at the two lavatory blocks were replaced by cement tanks and missing fixtures.

82. PURANA QILA, NEW DELHI.—In continuation of the previous year's work (*1969-70,* p. 90) the ceiling of the arches of the cells as also the open joints of walls were pointed. The terrace of the cells was re-surfaced with lime concrete. The south-west corner cells were repaired. The roof was re-surfaced with fresh concrete after grouting the cracks.

The bituminous road has been repaired after filling the depressions and a surface coat of bituminous concrete was provided. In order to protect the excavated trenches, a corrugated shed was provided.

83. SAFDARJANG'S TOMB, NEW DELHI.—The floor and wall of the northern *baradari* inside the tomb were repaired.

84. FORT, TUQHLAQABAD.—The thick vegetation growth near the fortification walls and other structures was removed.

Haryana

85. SHEIKH CHILLI'S TOMB, THANESAR, DISTRICT KARNAL.—The floor and the roofs of the northern cells were repaired. A 1.25 m. wide apron with country brick masonry between the main tomb and the southern wall was provided along the southern wall.

Punjab

86. FORT, BHATINDA.—The old and decayed plaster of the main gate was renewed. The missing wooden beams of the room in the rest-house were replaced. The bulged portion of the wall near the platform was dismantled and repaired with lime cement mortar. Barbed wire fencing was provided on the boundary of the fort.

Rajasthan

87. NILAKANTHA TEMPLE, GARH, DISTRICT ALWAR.—In order to clean the Naugaza temple, heavy stones were removed and excess earth was cleaned and the stone architectural pieces shifted to the temple.

88. BHATNER FORT, HANUMANGARH, DISTRICT GANGANAGAR.—The bulged portions of the wall were dismantled and made good.

Uttar Pradesh

89. ASOKAN ROCK EDICT, KALSI, DISTRICT DEHRA DUN.—Concreted apron was provided around the monument to prevent soakage of rain water affecting the masonry. The area around it was dressed and levelled.

SOUTHERN CIRCLE

Mysore

90. VIDYASHANKARA TEMPLE, SRINGERI, DISTRICT CHIKMAGALUR.—The Work of constructing the retaining wall in the breached embankment was continued.

91. NARAYANASWAMI TEMPLE, MELKOTE, DISTRICT MANDYA.—The decayed plaster on the stucco was removed from the parapet niches in the outer corner and the original condition of the stucco figures restored and the stucco-work in the *vimana* was strengthened. Re-flooring was also done.

92. DARYA DAULAT BAGH, SRIRANGAPATNA, DISTRICT MANDYA. — The missing wooden railings of the balcony as well as the protective wooden railing on the edge of the terrace were renewed. The cracks in the stone elephant at Srirangapatna were also repaired. The roof of the Ranganatha temple was water-tightened.

93. TEMPLE, KUPPAGADDE, DISTRICT SHIMOGA.—The roof was water-tightened by grouting and pointing.

94. PRANESVARA TEMPLE, TALAGUNDA, DISTRICT SHIMOGA.—The fallen compound was restored in brick-work and the roof of the temple water-tightened.

95. CHOWTAR'S PALACE, MUDABIDRI, DISTRICT SOUTH KANARA.—The gabled roof of the south-end room in the inner courtyard was replaced by fresh rafters and tiles.

Pondicherry

96. NEDUNGAD TEMPLE, KARAIKAL, PONDICHERRY.—Arrangements were made to provide for the drainage of rain water by providing a drain and the damaged part of the south-eastern compound wall was restored.

Tamil Nadu

97. ROCK-CUT TEMPLE, MAHENDRAVADI, DISTRICT NORTH ARCOT.—A barbed-wire fencing was provided all around the temple.

98. VENKATARAMA TEMPLE, GINGEE, DISTRICT SOUTH ARCOT.—The fallen carved pillars were erected in their original positions and a wooden door was provided at the northern entrance. The roof of the Gymnasium Hall was water-tightened.

99. AIRAVATESVARA TEMPLE, DARASURAM, DISTRICT THANJAVUR.—The flooring in the northern side of the courtyard of the temple was reset and the vegetation removed.

100. BRIHADISVARA TEMPLE, THANJAVUR.—The top-most portion of the *vimana,* upto the base of the neck, was fully water-tightened. The uneven flooring of amman shrine in the temple was re-laid and the temple-car shed was repaired.

101. SCHWARTZ CHURCH, THANJAVUR.—The compound wall which was damaged at places was rebuilt.

102. BRIHADISVARA TEMPLE, GANGAIKONDACHOLAPURAM, DISTRICT TIRUCHCHIRA-PALLI.—The terrace of the *mandapa* of the Nayaka period was water-tightened by laying two courses of bricks. The two massive but fallen statues of *dvarapalas* on both sides of the eastern *gopura* were reset in their original places.

SOUTH-EASTERN CIRCLE

Andhra Pradesh

103. VIRABHADRASWAMY TEMPLE, LEPAKSHI, DISTRICT ANANTAPUR.—The uneven slabs on the floor of the outer *prakara* and the pillared *mandapa* were re-set.

104. SRI KODANDARAMASWAMY TEMPLE, VONTIMITTA, DISTRICT CUDDAPAH.—The damaged flooring-slabs of *yajnasala* were re-set and the damaged concrete of the roof was dismantled for replacement.

105. CHARMINAR, HYDERABAD.—Fixing of artistic grilled iron fence around Charminar with gates for entrance and exit was in progress during the year.

Four gilted *kalasas* were refixed with necessary masonry bases in the original designs in plaster work. Missing and protruding plaster casts in the shape of leaves and buds were moulded in cement mortar and fixed in the parapet over the mosque (pl. LXXXV A and B).

SOUTH-WESTERN CIRCLE

Goa

106. MAHADEVA TEMPLE, TAMBDA SURLE, DISTRICT GOA.—This is the only temple of the eleventh-twelfth century A.D. in Goa territory, which still retains all the original architectural features; its *sikhara* and *sabhamandapa* had, however, suffered heavy damages. The dislodged architectural members of the *sikhara* have now been re-set and missing ones

replaced. The whole roof has been rendered water-tight. The pillars of the *sabhamandapa* have been re-set in plumb, and it is proposed to provide the missing stone slabs for the roof.

107. BOM JESUS CHURCH, VELHA GOA.—The ugly-looking patches in the plastered wall-surface of the interior of the hall were removed and painted in cream colour as per the original. Pointing of the open joints in the laterite walls on the rear was also attended to.

108. CHAPEL OF ST. CATHERINE, VELHA GOA.—The open land around the chapel has been fenced to stop nuisance from stray animals.

109. ST. FRANCIS ASSISSI CHURCH, VELHA GOA.—This church is noted for a massive vaulted hall. The recent earth-quake had caused a wide longitudinal crack in the one-metre thick ceiling. The crack was closed by providing reinforcement at regular intervals; the decayed concreted mortar in the affected areas has also been renewed.

Maharashtra

110. MALLIKARJUNA TEMPLE, GHOTAN, DISTRICT AHMEDNAGAR.—The accumulation of large quantities of debris in the sunken courtyard of the temple had resulted in the stagnation of water and consequent damage to the flooring and walls of the temple. While removing debris, portions of original stone pavement have been traced and the buried plinth mouldings of the temple were laid bare.

111. BIBI-KA-MAQBARA, AURANGABAD.—The decayed lime plaster on the exterior walls of the entrance gate and the main mausoleum was removed and fresh plaster in lime-cement-mortar was provided. The decorative floral designs have also been restored as per the original in all respects.

112. ROCK-CUT CAVES, AURANGABAD.—The coping for the parapet wall along the steps leading to caves in Group no. 1 has been provided and the undulations of weathered rock-cut floor of Cave no. 1 were removed and concreted. The stone masonry pillars in Cave no. 9 were replaced by R.C.C. pillars to match the original.

113. ROCK-CUT CAVES, AJANTA, DISTRICT AURANGABAD.—One of the major problems in the Ajanta caves was the heavy leakage of water in Cave nos. 1, 2, 16 and 17 which contain exquisite paintings. The fissures in the rock on the roof, permitting seepage of water, have been traced and grouted with liquid cement mortar. Leakage has been stopped in most places. The situation will be further watched and thereafter concreted mortar will be laid over the weathered rocky surface.

The damaged rock-cut pillars in Cave nos. 6 and 10 which were built in stone-masonry have been restored.

The underpinning of rock-cut niches near Cave no. 9 was completed and the masonry-built staircase was shifted to expose the sculptures on the rock-cut plinth of the caves. The masonry steps have been suitably plastered to match with, the adjacent rock-cut facades.

114. ROCK-CUT CAVES, ELLORA, DISTRICT AURANGABAD.—Removal of debris in front of Cave no. 32 has resulted in throwing open to view the entire frontage of the cave

(pl. **LXXXVI).** The leakage of water through fissures in the rock-cut ceiling has been stopped and front wall has been repaired by plastering the weathered surface to match the original.

The stone masonry pillars provided in the past in the entrance gateway of cave nos. 30-31 have been removed and the damaged eave, door-jambs and lintels were restored in R.C.G. and kept in conformity with the original cave excavation. The weathered rock-cut floor of cave no. 21 has been concreted and plastered in order to remove the undulations, etc. Similar treatment was undertaken in the case of the rock-cut floor of the open countyard in cave no. 16.

115. ROCK-CUT CAVES AT MANDAPESVAR, BORIVLI DISTRICT BOMBAY SUBURBAN.—The thick vegetation growing in the crevices of the roof and the debris accumulating around this rock-cut temple of seventh century A.D. have been removed.

116. ROCK-CUT CAVES, JOGESVARI, DISTRICT BOMBAY SUBURBAN.—This rock-cut temple, assignable to the eighth century A.D., is noted for beautifully carved doorways and pillars, but the rock is so soft that the details of carvings are lost in large areas. The inflow of storm and sullage water had aggravated the situation making even entry into the temple impossible. The back-flow of water has been stopped by reversing the slope of the concreted path-way.

117. ROCK-CUT CAVES, KARLA, DISTRICT PUNE.—The ornamental mouldings in cave no. 8, which had developed cracks, were secured in position by providing necessary pins.

The rubble-stone masonry of the water cistern in front of the main cave was dismantled and reconstructed in cement mortar and given rock-cut effect to match the caves around.

118. PATALESVAR CAVES, PUNE.—The unique rock-cut circular roof of the Nandi pavilion which had collapsed long ago, owing to the damage suffered by the pillars, was restored as per the original. The cracks in the remaining portions of the roof were grouted in liquid cement. The restored portions were made to match in colour and texture with the rest of the rock-cut temple. The parapet walls and rock-cut steps have been repaired and a garden has been laid out in the open courtyard.

119. SHANWARWADA, PUNE.—The damaged portions of the bastions of the citadel-wall were underpinned and the leaky roof of 'Chimanbaug' inside the Wada was water-tightened by laying fresh concrete.

Mysore

120. ASHTOOR MONUMEMT, BIDAR.—The cracks in the dome of the tombs have been grouted after eradicating vegetation. The foot-paths have been improved by spreading *murum.*

121. BARID SHAH-I-MONUMENT, BIDAR.—The cracks in the dome have been grouted with liquid cement mortar and the leakage of water has been completely stopped. The approach roads have been repaired by filling pot-holes, etc., and spreading *murum.*

122. MONUMEMTS IN FORT, BIDAR.—Certain portions of the stone walls of the citadel and of the moat near the first entrance gate were repaired by underpinning and also by restoring the missing portions.

The ancient underground water supply system and the reservoirs of the Royal Palace area have been repaired and commissioned into service. With the restoration of water supply, it has been possible to lay out a garden in front of the main mosque. Thus landscaping has enhanced the beauty of the monument.

Replastering of the walls of the Royal *hammam* was also completed.

The leaky roof of the Sola Khamb Mosque has been water-tightened by laying fresh cement concrete.

123. EARLY CHALUKYAN, TEMPLES, AIHOLE, DISTRICT BIJAPUR—The heavy mouldings and friezes of floral and geometric motifs carved on the high plinth of the apsidal Durga temple which has suffered due to exfoliation were, preserved by providing necessary binding medium and restoring the outlines of the simple mouldings in tinted mortar. Flag-stones have been provided around the basement to prevent erosion.

After levelling the area, stone pavement has been provided to arrest erosion.

The entire complex of Ladkhan, Narayan and Durga temples (pl. LXXXVII A) covering an area of nearly two acres, has been land-scaped and turfed. The two ancient wells in the complex have been commissioned for ensuring water supply for gardening purposes. Cultural Notice Boards have been provided.

A sculpture shed is being built to house the loose sculptures lying here.

The temple-complex at Ambigergudi consists of three independent shrines, two of which were buried upto the top of the plinth and the whole area was littered with debris. Manure pits dug by local residents had resulted in stagnation of water and consequent damage to the temples. The area was cleared of debris and in the course of scientific excavation an earlier temple, built of bricks and assignable to the Late Satavahana period, has been laid bare. Arrangements are being made to underpin the plinth of the Chalukyan (stone) temple built over the remains of the brick temple and to drain off water from this low-lying area.

The ancient stone platforms of the Kunti temple-complex (pi. LXXXVII B) built by the Chalukyas in the seventh Century A.D. around the plinth of two of the temples (nos. 1 and 2) in this complex, as a safety measure against further damage by flood and erosion, has been subsequently damaged. It has been re-set in position and the flag stones have been provided around all the three temples to prevent erosion.

124. FORT, BADAMI, DISTRICT BIJAPUR.—The northern fortification wall which had collapsed long ago has been repaired by building course by course using heavy stones as per the original.

125. ROCK-CUT CAVES, BADAMI, DISTRICT BIJAPUR.—The massive rock-cut pillars of Cave no. 1, which had suffered damage due to weathering, were restored to their original shape and texture in concreted mortar with reinforcement wherever necessary. Similar weathering action of the cliff surface above the sculpture of Nataraja has been arrested and cavities filled with mortar to match with adjacent rock surface.

126. PALLAVA INSCRIPTION, BADAMI, DISTRICT BIJAPUR.—After levelling the area, a garden has been laid out.

127. JAINA TEMPLE, PATTADAKAL, DISTRICT BIJAPUR -- Scientific clearance in the courtyard has brought to light the existence of an earlier brick temple, the plinth of which has several mouldings similar to those of the early Chalukyan temples. Further exposition-of the structure is in progress.

128. MALLIKARJUNA TEMPLE, PATTADAKAL, DISTRICT BIJAPUR.—The damaged and missing perforated stone screens of the windows were replaced by new ones as per the original design.

129. PAPANATHA TEMPLE, PATTADAKAL, DISTRICT BIJAPUR.—In the course of scientific clearance on the rear side of the temple, plinths of three sub-shrines, buried under debris, have been laid bare.

130. VIRUPAKSHA TEMPLE, PATTADAKAL, DISTRICT BIJAPUR.—The enclosure wall of this famous Chalukyan temple is noted for the introduction of miniature shrines and the *sala* and *kuta* motifs surmounting the shrines and the wall. It has suffered damage both due to exfoliation of stones and bulging of masonry. A major part of the wall has now been re-set in plumb. The entire open land around Mallikarjuna, Sangamesvara, Kasi Visvesvara and Galaganatha temples has been levelled and a garden has been laid out. Turfing has been done over half the area and inspection paths have been laid out. Cultural Notice Boards have been fixed and stone benches are provided for visitors to rest.

The perforated stone screens missing from some of the windows of the Virupaksha temple have been provided as per the original design.

131. MAHADEVA TEMPLE, ITTAGI, DISTRICT RAICHUR.—All the dead lime-concrete over the terrace of the main temple was replaced by fresh cement concrete to stop the leakage of water. The dislodged carved stones of the *sikhara* have been re-set in position.

132. PILLARED HALL NEAR MAHADEVA TEMPLE, ITTAGI, DISTRICT RAICHUR.—All the cracked roof slabs and lintels have been removed to replace the same with the new ones. The whole area has been dressed up after removing the modern accretions and encroachments.

133. SUB-SHRINE NO. 3 NEAR MAHADEVA TEMPLE, ITTAGI, DISTRICT RAICHUR.—The work of restoring the broken stone lintels, capitals and floor-slabs with new ones is in progress.

WESTERN CIRCLE

Gujarat

134. DARGAH SAMEH BURHANI, AHMADABAD.—The damaged *kangoora* parapet, dome and the carved *chajja* were re-set.

135. SAYYID USMAN MOSQUE, AHMADABAD.—The dome, the damaged *kangooras* on

the facade and the pavement were replaced with Dhrangadhra sandstone matching with the original.

136. DWARKADHISH TEMPLE, DWARKA, DISTRICT JAMNAGAR.—In continuation of the previous year's work *(1970-71,* p. 95), special repairs to the Dwarkadhish temple were taken up. Five damaged pillars on the ground and the first floor were re-placed. The weathered and damaged stones on the south and south-west were completely restored.

137. TRIVIKRAMJI TEMPLE, DWARKA, DISTRICT JAMNAGAR.—The removal and re placement of the heavily-damaged carved stones of the southern side of the plinth is in progress.

138. PRADYUMNAJI TEMPLE, DWARKA, DISTRICT JAMNAGAR.—Re-placing the damaged and weathered stones in the southern side of the temple, was taken up and completed to a height of 1-70 m.

139. RANI-KI-VAV, PATAN, DISTRICT MAHESANA.—In continuation of earlier work *(1970-71,* p. 96), the huge pile of stones and loose sculptures were, removed. Both the northern and southern side-walls, which were in a dilapidated condition, were set right and loose sculptures set in position.

Rajasthan

140. GROUP OF TEMPLES, ARTHUNA, DISTRICT BANSWADA.—In continuation of last year's work *(1970-71,* p. 96), the fallen architectural members and sculptures in the Siva temple no. 4, popularly known as Pipaliya Mahadeva were re-set in their original positions. The entire plinth measuring 38 m. square and 3-5 m. high was preserved along with its architectural members and sculptures, except the eastern side, where the work is in progress.

Siva temple no. 2, which was in a very neglected condition, was taken down carefully and all its loose sculptures as well as architectural members in *sabhamandapa* and *antarala* were re-set up to the rise of the *sikhara* level. The *garbhagriha* was conserved in all respects. The masonry of the *mandovara* of the *sabhamandapa* of the Jaina temple, which was out of plumb, was taken down carefully and re-set. The architectural members of the *sikhara,* which was equally out of plumb, were re-set. The debris in the core of the *sikhara* was removed and brick masonry in lime cement mortar with ceiling stones was provided for making it water-tight. The *sabhamandapa* was also paved. A Jaina shrine was brought to light on the western side of the temple as a result of the excavations.

141. MONUMENTS AT FORT, CHITORGARH.—The dilapidated portions of the flooring of Ratnasingh palace were set right. A part of the roof was water-tightened.

The huge debris lying at the site of the Mahadeva temple to the south of FatehPrakash palace was removed and its damaged pillars were renewed. Water-tightening of the roof and re-paving of the damaged flooring with new Manpura stones were also taken up.

In continuation of the previous year's work *(1970-71,* p. 96), the damaged flooring of the Rana Kumba palace and Padmini palace was repaired.

A garden was laid out between Bhama Shah and Topkhana.

142. MAHADEVA TEMPLE, MENAL, DISTRICT CHITORGARH.—Removal and re placement of damaged uneven stone flooring over a cement concrete cushion was taken up.

143. JAINA TEMPLE, KUMBHALGARH FORT, DISTRICT UDAIPUR.—In continuation of the previous year's work *(1970-71,* p. 97), conservation measures were taken up at the Jaina temple near Vajeh Pole. All the out-of-plumb and the fallen architectural members were set in their respective position.

MONUMENTS MAINTAINED BY THE STATES

ANDHRA PRADESH

The following monuments were conserved:

1. SRI RAMASWAMY TEMPLE, DACHPALLY, DISTRICT GUNTUR.

2. QUTB SHAHI MONUMENTS, GOLCONDA, DISTRICT HYDERABAD.—The enclosure wall on eastern and southern sides was raised. Construction of closet rooms and provision of R.G.G. *jollies* and trellises were undertaken.

3. TEMPLES AT GODISALA, DISTRICT KARIMNAGAR.

4. FORT, BHONGIR, DISTRICT NALGONDA.—The *mandapa* and the fallen gate were reconstructed with the help of existing decorated pillars, etc.

5. SHAMBHUNIGUDI TEMPLES, WARANGAL FORT.

ASSAM

6. RAIDONGIA TEMPLE, KALAKHOWA, DISTRICT DIBRUGARH.—The cracks which had appeared in the temple during the earthquake in August 1970 were grouted. Plaster was also renewed at places.

7. BASUDEV TEMPLE, KALABARI, DISTRICT DARRANG.—The archway across the main structure was reconstructed. The debris and filth accumulated inside were removed.

8. MAGHNOWA TEMPLE, PADMAPUR, DISTRICT LAKHIMPUR.—The disintegrated outermost courses of the extrados of the dome were renewed. The sanctum was cleared of the debris. The entire structure was grouted.

9. HARA-GAURI DOL, JAISAGAR, DISTRICT SIBSAGAR.—The disintegrated barrel-roof of the main temple and the *mandapa* have been renewed with lime-concrete and made water-tight.

10. NA-PUKHURI DOL, JAISAGAR, DISTRICT SIBSAGAR.—The exterior of the temple, including the extrados of the dome was cleared of vegetation and the distintegrated masonry renewed.

11. PHAKUA DOL, JAISAGAR, DISTRICT SIBSAGAR.—The ruins and the accumulated debris over the terraced structure was cleared. Besides eradication of vegetation, brick-work was renewed at places.

12. DEBIDOL, NAMTI, DISTRICT SIBSAGAR.—The extrados of the dome was lime-terraced and *lime-surkhi* plaster was renewed.

13. VISHNU DOL, NAMTI, DISTRICT SIBSAGAR.—The mutilated decorative bands on the exterior of the temple were reconstructed and the plaster renewed.

14. GARAKHIA DOL, NAZIRA, DISTRICT SIBSAGAR.—The monument was cleared of vegetation and deep-rooted trees. Underpinning work was done in the temple walls. The dilapidated archway was dismantled and reconstructed.

GUJARAT

The work of cleaning and conservation was carried out in the following monuments:

15. GAVE AT KADIYA DUNGAR, JHANJPOR, DISTRICT BHARUCH.

16. NAVALAKHA TEMPLE, GHUMLI, DISTRICT JAMNAGAR.

17. TEMPLE OF MADHAVARAI (OLD), MADHAVPUR, DISTRICT JUNAGADH.

18. JUMMA MASJID, UPARKOT, DISTRICT JUNAGADH.

19. STEP-WELL, MAHEMADEVAD, DISTRICT KHEDA.

20. SHAKTI KUND, AKHAJ, DISTRICT MAHESANA.

21. STEP-WELL, MODHERA, DISTRICT MAHESANA.

22. DEJHARIYA MAHADEVA, DEJHAR, DISTRICT PANCH MAHALS.

23. KUND (KALESHVARI), LAVANA, DISTRICT PANCH MAHALS.

24. SASUNI-VAV (KALESHVARI), LAVANA, DISTRICT PANCH MAHALS.

25. SARAI, PAVAGADH CHAMPANER, DISTRICT PANCH MAHALS.

26. STEP-WELL (GEBAL SHAH), PAVAGADH CHAMPANER, DISTRICT PANCH MAHALS.

27. SHAKTI MANDIR, ABHAPUR, DISTRICT SABARKANTHA.

28. JAINA AND SIVA TEMPLES, ANTARSUBA, DISTRICT SABARKANTHA.

29. SHIVA PANCHAYATANA TEMPLE, ANTARSUBA, DISTRICT SABARKANTHA.

30. HARISHCHANDRANI CHORI (TORAN), SHAMALAJI, DISTRICT SABARKANTHA.

31. RATBA-VAV, RAMPARA, DISTRICT SURENDRANAGAR.

32. MUNIBAWA'S TEMPLE, THAN, DISTRICT SURENDRANAGAR.

33. TEN TALAV, TEN, DISTRICT VADODARA.

KERALA

34. FORT, TELLICHERRY, DISTRICT CANNANORE.—The work of cleaning and reconstructing the drains, the removal of vegetation, reconstruction of damaged walls, re-placement of doors, repair of walls and parapet, etc., were taken up. During the execution of work, an underground chamber, probably a powder magazine with side chambers was noticed. Steps were taken to explore other areas of the fort to locate the reported 'mint' within the Fort. The powder magazine was suitably repaired and steps have been taken to control the large number of visitors to the chambers. It is now proposed to display objects of war of the period of the fort within the underground chamber.

35. FORT, KOTTAPPURAM, TRICHUR.—Clearing of vegetation, reconstruction of damaged walls, gateways, provision of barbed wire fencing around the monument etc., were undertaken.

MAHARASHTRA

36. HAUZ KATORA, DISTRICT AMARAVATI.—Minor repairs were carried out.

37. TOMB OF BANI BEGUM, KHULDABAD, DISTRICT AURANGABAD.—The ceiling, walls and the *baradari* were repaired.

ORISSA

38. FORT, GANJAM.—Repair work in the central block of the fort was completed.

39. SIVA TEMPLE, ALGUM, DISTRICT PURL—Conservation of the *mastaka* portion of the temple, locally known as Gatisvara, was completed.

40. SIVA TEMPLE, AMARESVARA, DISTRICT PURI.—The *jagamohana* of this tenth century brick temple was repaired.

41. LAKSHMI NARAYANA TEMPLE, CHAURASHI, DISTRICT PURI.—Conservation work in this thirteenth century temple, situated at the confluence of the Prachi and the Lalita rivers were completed.

PUNJAB

42. SHEESH MAHAL, PATIALA.—Some minor repairs were carried out in the chambers adjoining the painted rooms.

43. BARADARI, SANGRUR.—The damaged and fallen sections of the walls of the tank, in the middle of which is the *baradari,* and the fallen portion of the monument were rebuilt and restored. Vegetation was eradicated from the monument.

RAJASTHAN

Conservation, preservation and clearance works were carried out at the following monuments:

44. FATEH JUNG GUMBAD, ALWAR.

45. MAHARANI'S CHHATRIES, AMBER, DISTRICT JAIPUR.

46. RAJ MAHAL PALACES, AMBER, DISTRICT JAIPUR.

47. RAJA BHARMAL KI CHHATARI GROUP, AMBER, DISTRICT JAIPUR.

48. MAHARAJA'S CHHATRIES, GAITORE, DISTRICT JAIPUR.

49. NAHARGARH FORT, JAIPUR.

50. OBSERVATORY, JAIPUR.

51. MONUMENTS OF THE ZENANA BAGH, MANDORE, DISTRICT JODHPUR.

52. DEVTAON KI SAL, MANDORE, DISTRICT JODHPUR.

53. DEWALS AT MANDORE GARDEN, MANDORE, DISTRICT JODHPUR.

54. PANCH KUNDA, MANDORE, DISTRICT JODHPUR.

55. DARGAH SUFI SAHIB AND BULAND DARWAZA, NAGAUR.

56. EXCAVATED REMAINS, AHAR, DISTRICT UDAIPUR.

TAMIL NADU

57. VISALESWARAR TEMPLE, VILAKKANAMPOONDI, DISTRICT CHINGLEPUT.—The area

was cleared of vegetation. Dislocated stone courses in the inner *prakara* wall along the southern side were removed and re-set.

58. THIRUMALAI NAICK'S PALACE, MADURAI.—The wooden and masonry partition-walls were removed along the southern and western wings. Superimposed and accumulated layers of white-wash were removed in certain pillars and the original plaster exposed. Barbed wire-fencing above the existing compound-wall at the rear of the place was provided.

59. BRAHMI INSCRIPTIONS, ANAIMALAI HILL, NARASINGHAPURAM, DISTRICT MADURAI.—Steps were constructed along the hill to reach the cavern. A ladder was provided at a steep portion of the hill.

60. JAINA IMAGE, ANAIMALAI HILLS, NARASINGHAPURAM, DISTRICT MADURAI.—Vegeta tion was removed. Steps were built to reach the inscribed *tirthankara* images. Barbed wire fencing was provided around the area and vegetation was cleared.

61. KADAMBAVANESVARAR TEMPLE. ERUMBUR, DISTRICT SOUTH ARCOT.—Barbed wire fencing was provided around the temple. The work is in progress.

62. SIVA TEMPLE, PERANGIYUR, DISTRICT SOUTH ARCOT.—The disloged original brick-wall of the *mukhamandapa* was strengthened by grouting. Flooring was levelled and the roof-slabs were set right. The brick was plastered with lime-mortar and barbed wire fencing was provided around the area.

63. AMALISVARAM (PACCHIL), GOPURAPPATTI, DISTRICT TIRUCHCHIRAPPALLI.—Restoration of this ruined Siva temple started last year *{1970-71,* p. 102) was continued this year. The *linga* inside the sanctum, which was found uprooted along with its *avudaiyar,* was set right. The side walls along southern and northern sides of *mukhamandapa* were dismantled and restored. The two sculptures of Durga and Brahma, which were found inside the debris, were erected in their respective positions. The surviving brick *vimana* was conserved and a roof provided for the sanctum. Dislocated roof-slabs over the *mukha-mandapa* were removed and re-set. Two stone-pillars were provided inside the *mukhamandapa* to support the beam.

64. PACCHIL METRALI, PACHUR, DISTRICT TIRUCHCHIRAPPALLI.—The uprooted *linga* with its *avudaiyar* was set right in its position. Cracks and cleavages in the *vimana* were grouted and the *vimana* strengthened. The accumulated earth surrounding the temple was removed and the *adhishthana* exposed.

UTTAR PRADESH

The following monuments were conserved:

65. BALMIKI ASHRAM, BITHOOR, DISTRICT KANPUR.

66. EXCAVATED REMAINS, SONKH, DISTRICT MATHURA.

67. SANT KABIR'S SAMADHI, MAGHAR, DISTRICT VARANASI.

WEST BENGAL

68. GOKULCHAND TEMPLE, GOKULNAGAR, DISTRICT BANKURA.—The overgrown trees and their roots were removed from this *pancha-ratha* temple built of laterite. The missing laterite blocks were replaced. The damaged roof was repaired with lime-concrete terracing and the staircase was re-set with laterite blocks. The flooring was also repaired with lime-concrete terracing and the floor of the *rathas* were repaired by re-setting the stone blocks. The circumambulatory path was relaid with *surkhi* beaten plaster matching the original. The site has been properly dressed by cutting and filling earth after clearance of all shrubs.

69. SISNESVARA SIVA TEMPLE, JUGSARA, DISTRICT MURSHIDABAD.—The brick-built *charachala* temple was very badly damaged by the roots of a banyan tree overgrown on the structure. The tree was removed and the roof repaired with lime-concrete terracing. The missing and salt-affected bricks were replaced. The floor of the sanctum and the open terrace were repaired with lime-concrete.

70. RADHABINODE TEMPLE, CHELIAMA, DISTRICT PURULIA.—The brick-built *athchala* temple was badly-damaged by the roots growing on the walls and the roof. These roots were eradicated. The back wall, which was out of plumb, was re-set. Lime-concrete terracing was relaid on the roof after reconstructing the vault. The floor of the temple and the terrace outside were re-laid with a layer of lime-concrete terracing.

71. CHANDI TEMPLE, PARA, DISTRICT PURULIA.—Besides eradicating the vegetal growth and roots in the brick-built *rekha* temple, the overhanging brick-work was under pinned and missing brick-work was re-placed with new bricks. In the front facade, an additional brick-work was added in the form of a buttress wall to strengthen the top heavy structure. The truncated *sikhara* was made water-tight by filling in the open joints and lime-concrete terracing.

IX. EXPEDITION OUTSIDE INDIA

PRESERVATION OF BUDDHIST SHRINES AT BAMIYAN, AFGHANISTAN

The Survey resumed *(1970-71,* p. 103) the preservation work at the shrine of the Small Buddha for the third field season. The work, as in the previous seasons, was executed under the leadership of Shri R. Sengupta; the work of chemical preservation being directed by Dr. B. B. Lai. They were assisted respectively by Sarvashri G. K. Rao.and M. S. Mathur.

STRUCTURAL PRESERVATION.—The aperture in the west wall, caused by the separation of a chunk, was filled up with reinforced cement concrete; reinforcement steel rods were used to secure the loose chunks with the parent rock. On the outer face also, similar methods were employed to keep the dislodged portions in position. The surface was thereafter treated with tinted concrete plaster, to give a rock-like appearance. The crack (pl**. LXXXVIII** A and B) had extended to the west through the floor of the verandah of Cave 14. It was also filled in after providing bolts of M. S. rods by drilling holes in the thickness of the rock of the floor (pl**. LXXXIX** A and B). Due to the separation of the chunk, the steps of the spiral staircase in the west wall were disrupted. All these damaged steps were repaired in cement concrete (pl. XC A and B).

On removal of the rubble filling from the base of the eastern wall, it was found that what was hitherto considered to be a niche, turned out to be an entrance to a damaged shrine. The upper part of the shrine together with the right side wall was, however, missing with the result that during the winter season a lot of snow and debris used to accumulate inside it. On the extant portion of the ceiling of the shrine there were traces of paintings. To prevent further damage to the shrine and to provide a support to the overhanging mass of rock above it, the missing portion of the domical roof (pl**. XCI A** and **B**) was restored in reinforced concrete. The entrance to the shrine was also similarly restored. On the eastern flank of the principal niche enshrining the Buddha, the caves at the level of the first floor were repaired. The cracks appearing across the verandah of the caves were filled in by providing iron stirrups and finishing them to simulate the rock-surface. Dwarf walls(pl.. **XCII** A and B) were constructed along the outer edge of the verandah as a protective measure against any accident to unwary visitors. The depression in the verandah in front of Cave 2 was filled in, and the damaged steps (pl. **XCIII** A and B) on the east leading to the shrines at a higher level were made good.

Similarly, the damaged feet of the Buddha were repaired. On removal of the stumps of the wall, which had been built up by later occupants of the shrine, a crack across the right leg was noticed. The broken portion was secured by providing bolts of M. S. rods. The feet were then repaired and finished to give a time-worn look.

CHEMICAL PRESERVATION.—In continuation of the last year's work, *(1970-71,* p. 103) chemical conservation was undertaken in: (i) Cave nos. 11, 12 and 14, (ii) the main niche housing the Buddha; and (iii) cells on the ground floor behind and on the sides of the Buddha's feet. Besides, in the soot-laden walls and ceilings of caves on the left of the Buddha, work was taken up more for exploring the surviving remains of the painted surface under the accretion than for taking measures for preservation.

The paintings on the walls of the caves (pl. **XCIV** A and B) and the main niche were found to be very much damaged. In the main niche, finely painted plaster on various locations was seen to be precariously held to the wall only on an edge and had separated . itself from the wall. The gaps between the plaster and the wall were found filled up with debris. A plaster of Paris slurry had to be injected in the gap. The plaster had to be supported from the front during this process.

The painted plaster in the main niche (pl. . **XCV** A and B) was dotted with holes and rifts from which plaster had been lost. The walls of these cavities have abraded and tended to crumble. Over long and zigzag edges, the fragmentary and broken plaster presented a very extensive problem of filletting. In the caves and the main niche referred to above, damaged edges, to a total length of over 250 metres, were strengthened and secured with a suitably tinted plaster composition to match with the surrounding plaster. Filling of voids and cracks measuring to a total area of over 33 sq. m. was completed. The crumbling sides of these cracks had occasionally to be scraped for removal of loosened mud before filling up. In Cave no. 12, removal of old white Plaster of Paris used for a rather unrefined repair of broken edges and sides of the painted plaster was undertaken. This repair was replaced by appropriate filleting and edging of the corners and sides with plaster, properly tinted with earth colours.

The paintings in the caves and the main niche were found disfigured and overlaid with a varied type of accretion comprising dust, grease, cobwebs, insect cocoons, mud and water marks, bird drops and at places also soot. The chemical treatment uncovered painted areas, often in deep colours. In Cave no. 14, outline of a seated Buddha in red ochre, the halo of a Buddha, a *stupa* design with flags and festoons and a bell were seen. The erasure of streaks and water marks on the painted surface in the main niche was very time-consuming and had to be undertaken with great labour and patience on account of the penetration of humus in the painted layer. The pigments of the painted figures in the curvilinear portion of the painted ceiling of the main niche (pl. **XCVII** A and B) were very flaky. These were consolidated before the painting was subjected to cleaning for removal of the overlying accretion. Splashes of mud on the painted surface were sufficiently softened before attempts for their removal were made.

The walls of the cells behind and on the sides of the feet of the Buddha on the ground floor were found to be thickly overlaid with soot. In the central cell and in cell nos. 1, 4, 5 and 7 and in Cave no. 4 on the eastern side wall and ceiling, areas measuring to a total of 250 sq. metres were cleaned of soot with ammonia. In some of these cells, the soot was very thick and presented a heated and blistered appearance which gave the impression of a long habitation in these cells. No paintings were found under these thick coats of soot.

The soot-affected areas of a wall in Cave no. 2 (pl. **XCVI** A and B) on the left of the Buddha yielded remains of painted surface. Actually on some small patches, where the accretion seemed to have flaked off by itself, traces of colour could be seen. Examination of the cross-section of the painted plaster provided further useful clues for locating paint survivals.

Documentation of these paintings preceeded the chemical conservation and repair of the plaster.

X. ARCHAEOLOGICAL CHEMISTRY

TREATMENT OF MONUMENTS AND PAINTINGS'

ANDHRA PRADESH

1. GATEWAYS, WARANGAL FORT.—The four gateways of the Warangal fort were subjected to chemical cleaning and preservation. Thick tufts of moss and patches of lichen were removed with the help of an aqueous solution of ammonium hydroxide and teepol. Lime-wash was removed by using a lower percentage of glacial acetic acid. Sodium pentachlorophenate in water (3% solution) was used as fungicide. The area was preserved with a 3% solution of perspex in toluene. The total treated area of four pillars was about 600 sq. m.

BIHAR

2. STUCCO PANELS IN MONASTERY AT NALANDA, NALANDA, DISTRICT PATNA.—The cracks on some stucco panels on the walls of the rear temple in Site no. 3 were repaired. The damaged plaster-edges and corners were strengthened and filleted with a suitable tinted composition containing polyvinyl acetate, ochre, plaster and clay. The work is in progress.

DELHI

3. GOLDEN PAINTINGS ON THE WOODEN CEILING OF DIWAN-I-KHAS, RED FORT, DELHI.—The work of removal of the extraneous deposits, cowebs, insect-wax, water and humus-marks which had disfigured the floral paintings on the fabric covering the wooden ceiling of the Diwan-i-Khas, was continued. The cleaned and fixed paintings were given a preservative coating.

4. MARBLEWORK, DIWAN-I-KHAS, RED FORT, DELHI.—The exterior of the marble walls of the Diwan-i-Khas, the fountain by its side, the plinth and the marble panelling on the exterior walls of the *hammam* were taken up for chemical treatment. The decorated surface was cleaned of moss and lichen, and the iron-based stains and mud streaks were removed with the help of ammonia, lissapol and other chemicals.

GUJARAT

5. AHMAD SHAH'S TOMB, AHMADABAD.—The work on the marble shrine and the *jali* of Ahmad Shah's tomb, Ahmadabad, was taken up again this year. The marble

[1] Information from: 6, Director of Archaeology, Gujarat; 30 and 31, Director of Archaeology, West Bengal; and the rest from the Chief Archaeological Chemist of the Survey.

shrine and *the jali* were found to be covered with bituminous and oily stains, greasy matter, dust and dirt. The chemical cleaning was carried out using soft soap with distilled water and also with ammonia, lissapol and teepol with great success. Greasy and oily stains were removed with the help of organic solvents. A total area of 134 sq. m. has been completely cleaned and preserved.

6. PRACHINA JAINA MANDIR, PRABHAS PATAN, DISTRICT JUNAGADH.—The ceiling of the Prachina Jaina Mandir, Prabhas Patan, District Junagadh was chemically treated and preserved.

MADHYA PRADESH

7. VISVANATHA TEMPLE, KHAJURAHO, DISTRICT CHHATARPUR.—The sculptures and carvings on the southern side of the temple and on top of the various *mandapas* were cleaned of vegetal accretion and coatings of lime. Crystalline soluble salts, causing flaking of the surface of the stone-work, were also extracted with the help of wet paper-pulp.

8. PAINTINGS, BAGH CAVES, BAGH, DISTRICT DHAR.—As a first aid measure, preservation work by way of fixing of the painted plaster which had become loose and was flaking was executed in Cave no. 2 as a preliminary to extensive chemical treatment and documentation of the paintings.

MAHARASHTRA

9. ROCK-CUT CAVES, AJANTA, DISTRICT AURANGABAD.—The work of consolidation of the painted plaster and the pigment layer was continued in Cave no. 17. Strengthening of the edges and fixing of the plaster was done with the help of Plaster of Paris mixed with earth colours. The thin layer of plaster and pigment were fixed with the help of 20% polyvinyl acetate. While the work of strengthening the plaster was completed in Cave no. 17, work has been taken up in Cave no. 10 where the paintings have been executed on a thin shell-like plaster. About 8 sq. m. area has since been fixed and strengthened.

For the study of effect of fluctuations in temperature and humidity and their effect on the deterioration of paintings, relative humidity and temperature inside and outside Cave nos. 1, 2, 16 and 17 were recorded thrice daily.

The process of cleaning the paintings with the help of soft dry brushes continued this year as well. Dust was removed from the paintings in Cave nos. 1, 2, 9, 10, 16 and 17.

10. BIBI-KA-MAQBARA, AURANGABAD.—The work of chemical cleaning of the highly corroded carved iron and copper door-plates of the main tomb of Bibi-ka-Maqbara was continued. Some iron plates were found to be badly rusted and copper sheets had become almost a dirty green mass. These were properly cleaned and the surface preserved with a polyvinyl acetate coat to save them from further rusting.

11. ROCK-CUT CAVES, ELLORA, DISTRICT AURANGABAD.—The work of fixing the flaking pigment and plaster layers was continued in Cave no. 32. Most of the plaster was strengthened with the help of Plaster of Paris and polyvinyl acetate. The work of cleaning

and preserving the paintings in the two ante-chambers of Cave no. 32 was also completed. The work of strengthening of painted plaster in Cave no. 33 was taken up.

MYSORE

12. TIPU SULTAN'S PALACE, BANGALORE.—Chemical cleaning and preservation of paintings in Tipu Sultan's Palace, Bangalore was completed. The work involved consolidation of the loose edges of pigment and layers of plaster with 20% solution of polyvinyl acetate in toluene and acetone and removal of superficial deposits with the help of several organic solvents and their mixtures. The paintings have been preserved after cleaning with a 3% coat of polyvinyl acetate in a mixture of toluene and acetone in the ratio of 1:1.

13. CHENNAKESVA TEMPLE, BELUR, DISTRICT HASSAN.—The work of chemical treat ment and preservation initiated earlier *(1969-70,* p. 110) was continued this year. An area of 146 sq. m. was subjected to chemical cleaning. Chemical treatment was carried out in the car-like niche in the lower balcony, horse and elephant friezes on the western side, pillar-like projections, etc. An aqueous solution of ammonium hydroxide and detergent (teepol) and a mild organic acid were used for the removal of moss, lichen and general cleaning. For removing brownish stains on the stone surface, an aqueous solution of deoxidine was used successfully.

14. DARYA DAULAT BAGH, SRIRANGAPATNA, DISTRICT MANDYA.—Chemical cleaning and conservation work was carried out on the paintings on the eastern wall on the southern side of the Darya Daulat Bagh. Superficial dust, dirt and other accretions were removed with the help of soft dry brushes. Brown stains and the other tenaciously adhering accretions were removed from the surface of the paintings with the help of chemicals like diacetone alcohol, cellosolve, morpholine, butylacetate and their mixtures. Loose and flaking pigments from the paint film were consolidated and fixed with the help of a thick solution of polyvinyl acetate. The treated area was finally preserved with a 3% solution of polyvinyl acetate in toluene and acetone.

15. SCULPTURES, KESAVA TEMPLE, SOMANATHAPUR, DISTRICT MYSORE.—The three towers and sculptures in this temple, covering an area of 1215 sq. m., are badly covered with black moss and white patches of lichen and extensive growth of stone flowers. Moss and lichen and stone flowers were removed by ammonia water and teepol in varied concentration according to the intensity of vegetal growth. A 3% solution of sodium pentachlorophenate in water was used as fungicide. The work was mostly carried out on the tower on the southern side, the lower portions and the southern side wall in the front portion connecting the southern tower. A total area of 292 sq. m. was cleaned. About three-fourth of this area has been preserved with a 3% solution of perspex in toluene. The work is to continue.

ORISSA

16. DAKSHA PRAJAPATI TEMPLE, BANPUR, DISTRICT PURI.—Almost the entire *vimana* of the temple, excepting a small area on the northern side near the ground, up to a height

of about two metres, was freed of vegetal growth. Soluble salts were also extracted wherever they were visible or where there was indication of flaking or friability of the stone.

17. LINGARAJA TEMPLE, BHUBANESWAR, DISTRICT PURI.—The inner walls of the sanctum, the *jagamohana* and the *bhoga mandapa* of this temple, which were heavily coated with oil, grease and smoke issuing from the incense burners, were cleaned of the accretion and layers of lime.

18. PARBATI TEMPLE, BHUBANESWAR, DISTRICT PURI.—The work of eradication of vegetal growth, such as moss and lichen from the surface of the sculptures and carvings was continued *(1970-71,* p. 105). Certain parts of the temple, which are being affected by large-scale flaking of the stone surface, were treated with paper-pulp for the removal of harmful soluble salts.

19. UDAYAGIRI AND KHANDAGIRI CAVES, BHUBANESWAR, DISTRICT PURI.—The chemical treatment and preservation of salt-and lime-affected sculptures, carvings and inscriptions was completed. The work also involved the removal of bird and bat-droppings and clearing of water and clay marks.

20. SUN TEMPLE, KONARAK, DISTRICT PURI.—The sculptures and carvings in the *antarala,* between the *vimana* and the *jagamohana* of the temple, on the western part of the southern wall and on the terraces above the third row *of pidas,* were subjected to chemical treatment for the removal of growth of moss and lichen. The work is to continue.

PUNJAB

21. TOMB OF MUHAMMAD MOMIN, NAKODAR, DISTRICT JULLUNDUR.—The enamelled tiles on the exterior of this tomb, and that of the pupil, Haji Jamal, which were covered with moss and tufts of lichen, were chemically treated. The painted decoration on the walls of the tomb, overlaid with moss, were also successfully cleaned, uncovering the colours underneath. The work is to continue.

TAMIL NADU

22. CHENNARAYA TEMPLE, ADIAMANKOTTAI, DISTRICT DHARMAPURI---The paintings on the ceilings of the *mandapa* of the temple were subjected to chemical cleaning and preservation. The paintings, which are mostly done in black, red and green were affected by the seepage of water and burning of oil lamps. In addition to these, thick coats of dirt, dust, cobwebs, etc., had covered the paintings. The paintings were subjected to chemical and mechanical methods of cleaning. After removing the dust and cobweb with soft brushes, the other incrustations on the surface were removed with the help of organic solvents like butyl lactate and diacetone alcohol individually and in combination. The 'ground' and 'pigment' layers were consolidated with the help of suitably tinted Plaster of Paris and thick solution of polyvinyl acetate. After proper cleaning and removal of acceretions, the paintings were preserved with a 3% solution of polyvinyl acetate in toluene.

23. BRIHADISVARA TEMPLE, THANJAVUR.—Cleaning and preservation of the paintings in the Tandava Gallery on the first floor and the chambers around the sanctum was initiated. Besides dust, dirt, soot and other accretions which had collected over the surface of paintings, the preservatives applied in the past, were also showing a tendency of yellowing. The paint film and the ground had become loose at places and was showing a tendency to flake off. This necessitated fixing and filleting of edges. The work of strengthening of plaster was carried out by using Plaster of Paris mixed with suitable earth colours and thick solutions of polyvinyl acetate. Dust and dirt were removed by soft dry brushes. The old preservative coat was removed by using a mixture of acetone and toluene. The paintings were further cleaned by using triethanolamine, butyl lactate and teepol. Solvents like cellosolve and butyl alcohol were also used. Turpentine was used as arrester. After cleaning, the paintings have been preserved with a 3% solution of polyvinyl acetate in toluene.

UTTAR PRADESH

24. MRTTUNJAYA TEMPLE, JAGESHWAR, DISTRICT ALMORA.—The sculptures and decorations were found affected by soluble salts and freezing of water and were overlaid with crusts of lichen and a layer of moss. The temple was subjected to chemical treatment and the work was completed.

25. BRICKS IN ASVAMEDHA SITE, KALSI, DISTRICT DEHRA DUN.—In the excavated Site no. 2, the layer of moss overlying the exposed bricks was eliminated and the bricks were given fungicidal treatment with mercuric chloride solution and consolidated with polyvinyl acetate resin.

26. PAINTINGS IN RANI LAKSHMI BAI'S PALACE, JHANSI.—The paintings on the walls and ceilings of the retiring room and the stairways of this palace, which were disfigured by water and humus and covered over by old varnish and lime wash, were subjected to chemical treatment.

27. KUSHAN PILLAR, DEV GAON, LALA BHAGAT, DISTRICT KANPUR.—The crust of moss and lichen on the carvings on the carved pillar was chemically removed.

WEST BENGAL

28. SHYAM RAI TEMPLE, BISHNUPUR, DISTRICT BANKURA.—The layer of moss on the decorated terracotta plaques on the exterior surface of the temple was removed.

29. BRINDABAN CHANDRA TEMPLE, GUPTIPARA, DISTRICT HOOGHLY.—The paintings on the lower portion of the walls of the *garbhagriha* of the temple were chemically treated and preserved. The outer facade of the temple, which was covered with moss and lichen, was also chemically cleaned and preserved.

30. RADHABINOD TEMPLE, CHELIYARD, DISTRICT PURALIA.—The work of removal of crystallized salts, organic growth, etc., from the terracotta plaques and mouldings in the temple was taken up.

31. NANDAKISHORE TEMPLE, HALISAHAR, DISTRICT 24-PARGANAS.—The terracotta plaques and mouldings on the temple, which were affected by crystallization of salts and organic growth, were examined for chemical treatment.

TREATMENT OF EXCAVATED OBJECTS AND MUSEUM EXHIBITS

Three thousand four hundred and eighty antiquities, comprising copper and iron objects and paintings, were chemically treated and preserved in the Survey's laboratories at Dehra Dun. Out of these, three thousand and sixty were copper coins from Hauz Khas, New Delhi; two hundred and fifty copper and iron objects, coins and skull of a rat from excavations at Purana Qila, New Delhi; three paintings from Bijapur, besides other objects from various sites. Apart from these, fifty copper coins from the Archaeological Museum, Bijapur, two hundred and three copper coins from Tipu Sultan Museum, Srirangapatna, eight iron and four copper objects received from the Department of Archaeology, Tamil Nadu, and a bronze image of Mahavira from Nuina, Midnapore, were chemically treated and preserved.[1]

A bronze sculpture of an elephant-rider from Gamapipalia, District Amreli,- iron ball and swords from Bhadra, Ahmadabad, were chemically treated and preserved.[2]

About eight hundred coins, objects of bone, shell, ivory, wood, textiles, paper and leather obtained from explorations and excavations, and were chemically treated and preserved.[3]

ANALYSIS AND RESEARCH

GEOCHRONOLOGICAL STUDIES.—The geochronological work carried out on certain laterite specimens was reported upon. The work in District Birbhum is in the final stages.

CHEMICAL ANALYSIS.—Eleven specimens, comprising four glass samples from Dharanikota, and seven stucco plaster samples from Hadda, Afghanistan, were examined. Soil specimens from the excavations at Purana Qila were analyzed. The bone specimens from the same site were subjected to fluorine analysis.

DOCUMENTATION.—As part of the documentation programme, four hundred and eight negatives, six hundred and three photographic prints and twelve colour transparencies, thrity-two drawings of mural paintings and plans of caves at Bamiyan and Darra Fauladi in Afghanistan were prepared.

i Information from the Chief Archaeological Chemist of the Survey.

• Information from the Director of Archaeology, Gujarat.

• Information from the Director of Archaeology and Museums, Rajasthan.

• Information from the Chief Archaeological Chemist of the Survey.

XI. ARCHAEOLOGICAL GARDENS[1]

ANDHRA PRADESH

1. HILL-TOP GARDEN, NAGARJUNAKONDA, DISTRICT GUNTUR.—Besides general maintenance of the garden around the Museum and the area where the structures have been re-erected, gradual clearance was carried out in Enclosure I.

2. KHAZANA BUILDING MUSEUM, GOLCONDA, DISTRICT HYDERABAD.—An ornamental garden was laid-out with lawns, flower beds, shrubberies and hedges and peripheral plantation. Sam and thuja trees were planted.

3. QUTB SHAHI MONUMENTS, GOLCONDA, DISTRICT HYDERABAD.—A nursery for the propagation and raising of plants was laid out in the courtyard of the Museum. New varieties of roses, ornamental shrubs and beds of annuals, bougainvilleas of different shades and colours were introduced. In Muhammad Quli Qutb Shah's tomb, the trees which were hiding the view of the monument were removed and cacti, crotons and palms were planted. Attempts are being made for regular water-supply by constructing an over head water-tank and providing distribution lines and hydrants. In one of the plots, a rockery created and cacti of different species were planted. In the southern quadrant of the tomb-complex, orchards were added and guava, pomegranates and fig trees were planted.

4. VICTORIA JUBILEE MUSEUM, VIJAYAWADA, DISTRICT KRISHNA.—The work of planting shrubberies and other plants was completed.

5. SITE MUSEUM, KULPAK, DISTRICT NALGONDA.—Horticultural operations were initiated for laying-out a garden comprising lawns, on either side of the fountain. Hedges, flower-beds and shrubberies were introduced. The work is in progress.

DELHI

6. HUMAYUN'S TOMB, NEW DELHI.—In the Nursery, pot-plants were transplanted and properly maintained. The work of propagation of various shrubs, roses, cannas, etc., was completed in the Lower Nursery and roses and bougainvilleas from different parts of the country were collected and supplied to different monuments.

7. KHAN-I-KHANAN'S TOMB, NEW DELHI.—In the Mughal style garden around the tomb, new varieties of plants were introduced in the shrubs and the lawns and hedges were mowed and clipped.

[1] Information from: 2-5, Director of Archaeology and Museums, Andhra Pradesh; 15, Director of Museums and Archaeology, Jammu and Kashmir; 27 and 28, Director of Cultural Affairs, Orissa; and 1, 6-14, 16-26 and 29-40, from the Chief Horticulturist of the Survey.

8. KOTLA FIRUZ SHAH, NEW DELHI.—The cannas, roses and annuals in the garden were looked after and the lawns, shrubs and hedges were properly maintained.

9. LODI TOMBS, NEW DELHI.—The informal gardens in the tomb-complex were properly maintained and, as a result, the annuals, roses and cannas were in full bloom throughout the year. The lawns and shrubs were kept in good trim.

10. PURANA QILA, NEW DELHI.—As a part of major programme of face-lifting, an additional 1*214 hectares of area inside the fort was taken up for gardening after the removal of jungle-growth and stones. The work entails laying-out of flower-beds and extensive turfed-lawns inside the fort. The work is in progress.

11. QUTB, DELHI.—The seasonal operations in the garden in the area surrounding the monuments were attended to and the shrubs, lawns, hedges, etc., were properly maintained. In the Junglee Bagh area, more annuals, trees and roses were introduced.

12. RED FORT, DELHI.—The extensive lawns inside the fort were returfed. In the area around the Museum, more annual beds were introduced. Besides planting of polliathias along the boundary fencing, the annual beds, roses and cannas were kept in full bloom throughout the year.

13. SAFDARJUNG'S TOMB, NEW DELHI.—In the Mughal style garden in the tomb, rose-beds, cannas and annuals were kept in full bloom and the jasminiums and shrubs were properly maintained. After removing the casualties, all the beds were filled-up.

GOA

14. CHURCH GARDENS, VELHA GOA.—With the provision of adequate water-supply after the installation of two electric motor-pumps, sufficient progress was made in horticultural operations. It is now proposed to increase the capacity of the shallow well behind the St. Cajetan Church during the next year. After successful experimentation in regard to the planting of the Calcutta *doob* grass, two plots in front of the Se Cathedral were dug and pulverized for planting the *doob* grass during the rainy season next year. All the casualties in the shrubberies were removed and the beds were filled with seasonals, consisting of herbaceous, perennials and annuals.

JAMMU AND KASHMIR

15. ARCHAEOLOGICAL MUSEUM, SRINAGAR, DISTRICT, KASHMIR SOUTH.—Flower beds were provided adjacent to the sculptures placed on pedestals in the garden.

MADHYA PRADESH

16. GROUP OF MONUMENTS, KHAJURAHO, DISTRICT CHHATARPUR.-The roses, cannas and annuals were in bloom throughout the year and the lawns and hedges were properly mowed and clipped in the gardens around the monuments.

MAHARASHTRA

17. BIBI-KA-MAQBARA, AURANGABAD.—After the clearance of rank vegetation, trees, shrubs and a variety of roses were planted in flower-beds. Several thousand crotons were prepared for propagational purposes. A large number of roses were budded.

With the installation of a vertical turbine pump of 40-91 kilolitres per hour capacity, and the desilting of the well, it is now proposed to lay out a net-work of pipelines for effective irrigation in the garden.

MYSORE

18. ALI RAUZA, BIJAPUR.—The ornamental garden and the orchard were properly maintained and kept in a presentable condition throughout the year.

19. ASAR MAHAL, BIJAPUR.—Seasonal operations were carried out and the small garden was kept in a presentable condition throughout the year.

20. GAGAN MAHAL, BIJAPUR.—Changes were made in the alignment of the paths and the flower-beds and smaller plots were merged into bigger ones.

21. GOL GUMBAD, BIJAPUR.—Several new shrubs were planted in the shrubberies and the beds were maintained with annuals and seasonal flowers. Propagational activities were intensified.

22. IBRAHIM RAUZA, BIJAPUR.—The well was desilted and the pumps were re-set, thereby improving water-supply in the garden.

23. HOYASALESVARA TEMPLE, HALEBID, DISTRICT HASSAN.—With the availability of water from Dwarasamudram, the pump-set was re-commissioned and the lawns were properly maintained.

24. DARYA DAULAT BAGH, SRIRANGAPATNA, DISTRICT MANDYA.—Laying of 10 cm. C.I distributory pipe-line is in progress. A large number of plants have been propagated for planting after the reorientation work in the garden is completed. These include several varieties of shrubs, trees, bulbs, etc. Improvements were carried out in the upper orchard.

25. GUMBAD GARDEN, SRIRANGAPATNA, DISTRICT MANDYA.—For maintaining perennial water-supply, the existing well was deepened and de-silted and a centrifugal pump was installed and P.V.C. pipes were laid. As a preliminary to the establishment of a Mughal style garden around the monument, ground-survey was completed and orchard planting was taken up. The work of re-orientation is in progress.

26. KESAVA TEMPLE, SOMANATHPUR, DISTRICT MYSORE.—The new plantation in the garden is coming up nicely and the garden well-maintained throughout the year.

ORISSA

27. ARCHAEOLOGICAL GARDENS, KENDULI, DISTRICT PURI.—Seasonal flower plants and fruit trees were planted in the garden.

28. LAKSHMANESVARA GROUP OF TEMPLPS, BHUBANESWAR, DISTRICT PURI.—Besides planting of seasonal flower and fruit trees, *pucca* benches were provided in the garden.

RAJASTHAN

29. ANASAGAR BARADARI, AJMER.—The garden was kept in a presentable condition throughout the year. Beds of annuals, roses and cannas were filled up with rare varieties.

30. DIG PALACES, DIG, DISTRICT BHARATPUR.—The garden was properly maintained throughout the year. All the beds of roses, cannas and jasminiums were in full bloom. Seasonal operations were carried out in all the shrubs, lawns and hedges. Roses and jasminiums were propagated.

31. AMBER PALACES, AMBER, DISTRICT JAIPUR.—The Jaleb Chowk of the palaces was developed on the old pattern of the Dalaram garden below. All the gardens were properly maintained.

UTTAR PRADESH

32. AKBAR'S TOMB, AGRA.—An area 0-8 hectares was returfed with Calcutta *doob* grass. About one hundred and fifty quintals of cereals were produced under the 'Grow More Food' campaign. Boring of two wells was undertaken to enhance the water-supply.

33. IDGAH, AGRA.—One plot, near the main mosque, was dug and after proper levelling, re-planted with Calcutta *doob* grass.

34. KHAN-I-ALAM NURSERY, AGRA.—Plants of different varieties were raised and new varieties of roses were introduced. At the lower Khan-i-Alam, the mother plants of old roses were removed and fresh plants were added.

35. MARYAM'S TOMB, AGRA.—An area of 0-4 hectares in the garden around the tomb was dug and planted with *doob* grass.

36. TAJ MAHAL, AGRA.—TWO plots were returfed with Calcutta *doob* grass.

37 . FATEHPUR SIKRI, DISTRICT AGRA--- The area attached to Tansen's Baradari was dug, and levelled after removing boulders debris, etc., for preparing turfed lawns and for planting suitable varieties of flowering shrubs.

38. EXCAVATED REMAINS, KUSHINAGAR, DISTRICT DEORIA---One plot was dug and after levelling, etc., pure *doob* grass was planted.

39. SAHET-MAHET, SRAVASTI, DISTRICT GONDA.—The work of laying out an ornamental garden around this important Buddhist site was taken up. An electric pumping-set was also obtained for regular water-supply.

40. BUDDHIST REMAINS, SARNATH, DISTRICT VARANASI.—An area of about 0.8 hectares was re-turfed.

XH. PUBLICATIONS

PUBLICATIONS OF THE SURVEY

1. ANNUAL REPORT ON INDIAN EPIGRAPHY.—The issues for 1965-66 and 1966-67 were brought out.

2. ANCIENT INDIA.—No 22 was sent to the press.

3. EPIGRAPHIA INDICA.—Part **VII** of vol. **XXXVII** and parts **I** and **III** of volume **XXXVIII** were issued.

4. EPIGRAPHIA INDICA—ARABIC AND PERSIAN SUPPLEMENT.—The number for 1969 was in advanced stage of printing and the number for 1970 was under print.

5. INDIAN ARCHAEOLOGY—A REVIEW.—The number for 1968-69 was published.

6. GUIDE BOOKS.—Guides to *Khajuraho* (second edition) by Krishna Deva, and *Dig* (second edition) by M. G. Joshi were reprinted. Guides to *Mandu* by D. R. Patil and *Amaravati* by H. Sarkar and S. P. Nainar were in the final stages of printing. The Guides to *Nagarjunakonda* by H. Sarkar, and B. N. Misra, *Mahabalipuram* by C. Sivaramamurti and *Ajanta* by Debala Mitra, were taken up for reprinting.

7. PICTURE POSTCARDS.—Picture postcards sets of Agra (Sets A and B),Bhubaneswar (Sets A and B), Chitorgarh, Goa, Hyderabad and Golconda, Konarak (Sets A and B), and Nagarjunakonda, were reprinted.

8. COLOUR PICTURE POSTCARDS.—Twelve cards of Ellora were printed.

OTHER PUBLICATIONS

ANDHRA PRADESH.—The Director of Archaeology and Museums, Andhra Pradesh, brought out the following publications: *Krishnadevarqya, History of Vijayanagar* and *Journal of the Andhra Historical Research Society,* vol. 32.

Select Epigraphs in Andhra Pradesh and *Corpus of Telangana Inscriptions,* part IV, under Epigraphy Series were sent to the press while the *Annual Report on Epigraphy in Andhra Pradesh* for the year 1968 and the volume on the inscriptions of the Cuddapah District under the same series were under preparation.

BIHAR.—The Chandradhari Museum, Darbhanga, brought out a publication on the select sculptures and archaeological finds in the Museum.

GUJARAT---*Somnath 1956 (being a Report of Excavations)* was published jointly by the

Directorate of Archaeology, Gujarat, and the M. S. University of Baroda. *House of Smt. Kasturba,* an introductory booklet, is in press.

KERALA.—The following books were under preparation by the Directorate of Archaeology, Kerala: *Temple Architecture of Kerala, Iconography of Murals, Wood Carvings of Kerala, A Guide to Krishnapuram Palace and Architectural Antiquities of Kerala from 300 B.C. to 1800 A.D.* The following publications were released: *Early Coins of Kerala, Indian Archaeology—A Review* (in Malayalam), and *Guide to Padmanabhapuram Palace* (in English, Malayalam and Tamil).

MADHYA PRADESH.—The Government of Madhya Pradesh published *Madhya Pradesh Ka Puratattva* (in Hindi), by K. D. Bajpai.

MAHARASHTRA.—The Director of Archives and Archaeology published illustrated folders in Marathi on Shri Bhavani Art Museum and Library, Aundh, Kolhapur Museum, Kolhapur and Shri Chhatrapati Shivaji Maharaj Museum, Satara and a guide book in Marathi to the Kolhapur Museum by N. V. Powar.

The-Department of Ancient Indian History, Culture and Archaeology, University of Nagpur published the following: *Pauni Excavations,* by S. B. Deo and J. P. Joshi; *Archaeological Congress and Seminar Papers,* by S. B. Deo(ed.) and *Satavahana Coins and Coins from Excavations* by A. M. Shastri (ed.).

RAJASTHAN.—The Directorate of Archaeology and Museums, Rajasthan, brought out the following: *Published Muslim Inscriptions of Rajasthan,* by Z. A. Desai and *Rqjasthani chitron mein Shikar,* by M. L. Gupta.

TAMIL NADU.—The Department of Archaeology, Tamil Nadu, published *A Guide to Thirumalai Naicker Mahal.* The following publications were in various stages of printing: *Kanyakumari Inscriptions of Agasthiswaram Taluk, The Art of Tamil Nadu* and *Chengam Hero-stones.*

UTTAR PRADESH.—The *Catalogue of Brahmanical Sculptures* (part I) and two issues of the *Bulletin of Museum and Archaeology in Uttar Pradesh* were published by the Director, State Museum, Lucknow. The State Museum, Mathura, published an illustrated guide-book in Hindi, entitled, *Mathura Sangrahalaya Parichaya.* The Hindi Samiti, Government of Uttar Pradesh, published a book *Bharatiya Vastukala ka Itihasa* by K. D. Bajpai.

WEST BENGAL.—The Department of Archaeology, University of Calcutta, published *Archaeological Discoveries from Murshidabad* and *An Approach to Indian Archaeology,* by S. R. Das.

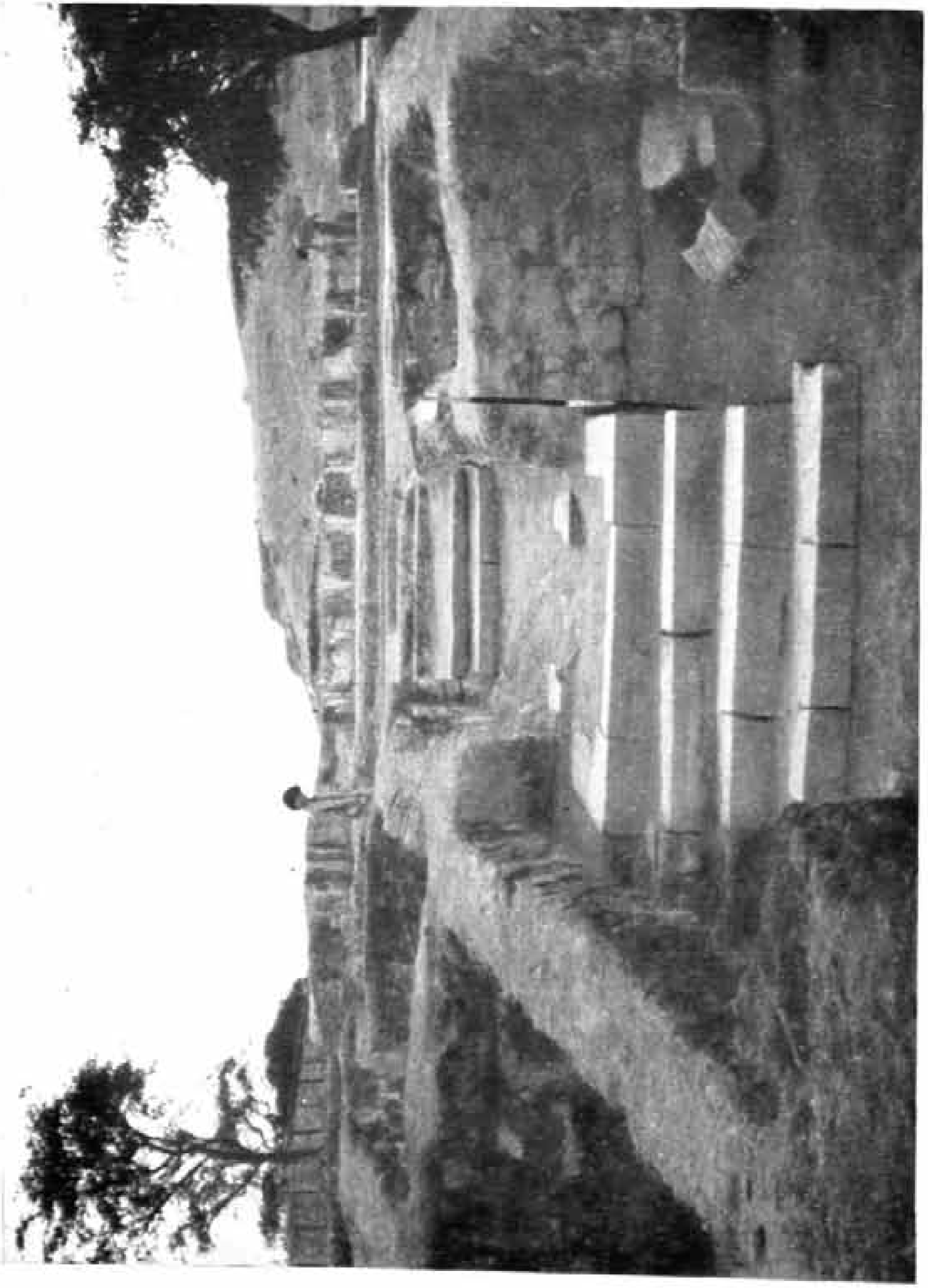


A



B

Amaravati : A, *Early Stone Age tools*; B, *Satavahana structures*. *See p. 1*



Golconda : flight of steps of the mosque. *See p. 1*



A



B

Golconda : A, *well;* B, *glass decanters.* *See p. 2*

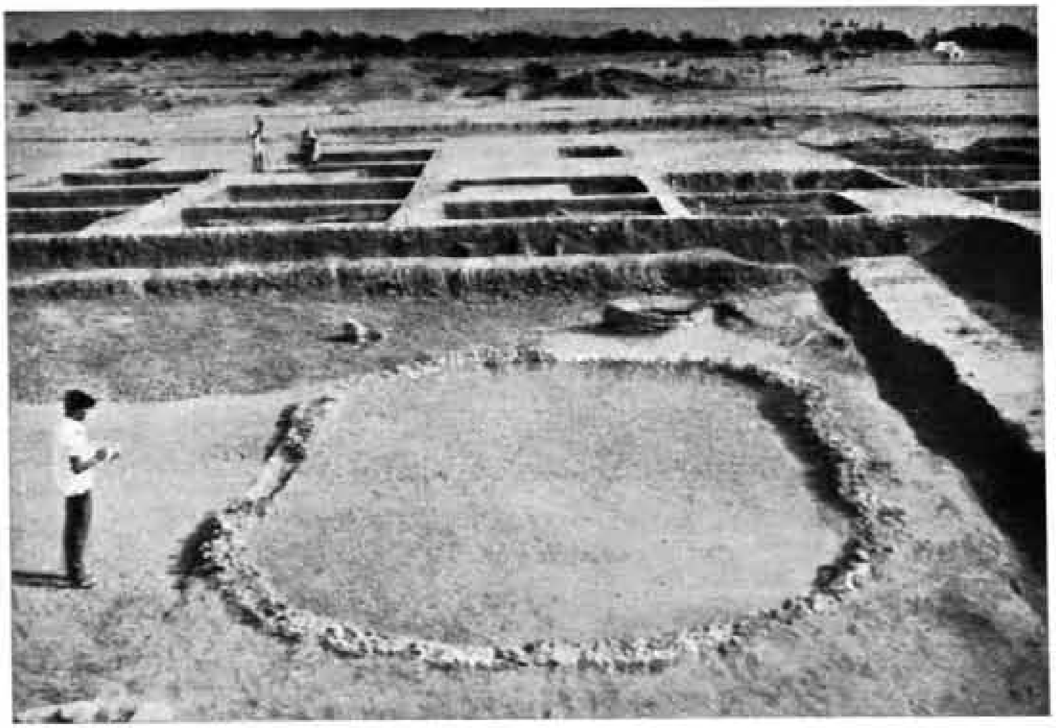


B



A

Golconda : terracotta plaque, A, obverse; B, reverse. *See p. 2*

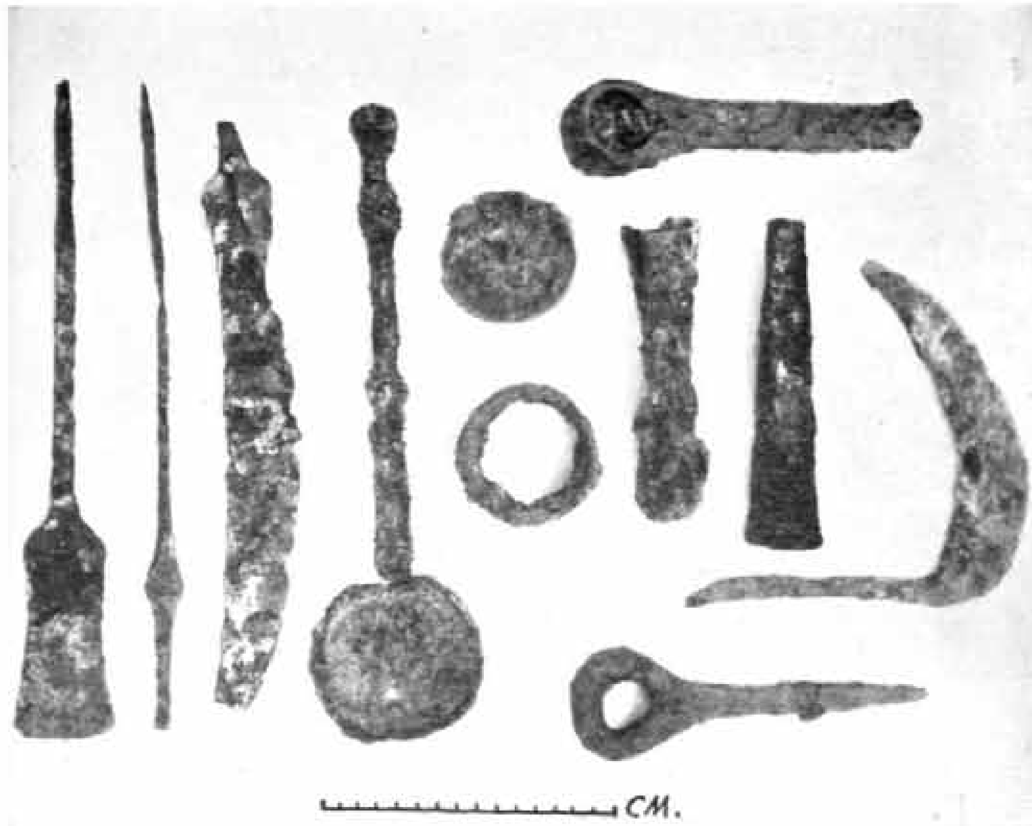


A



B

Peddabankur : A, elliptical structure; B, blacksmith's workshop. *See pp. 2 and 3*

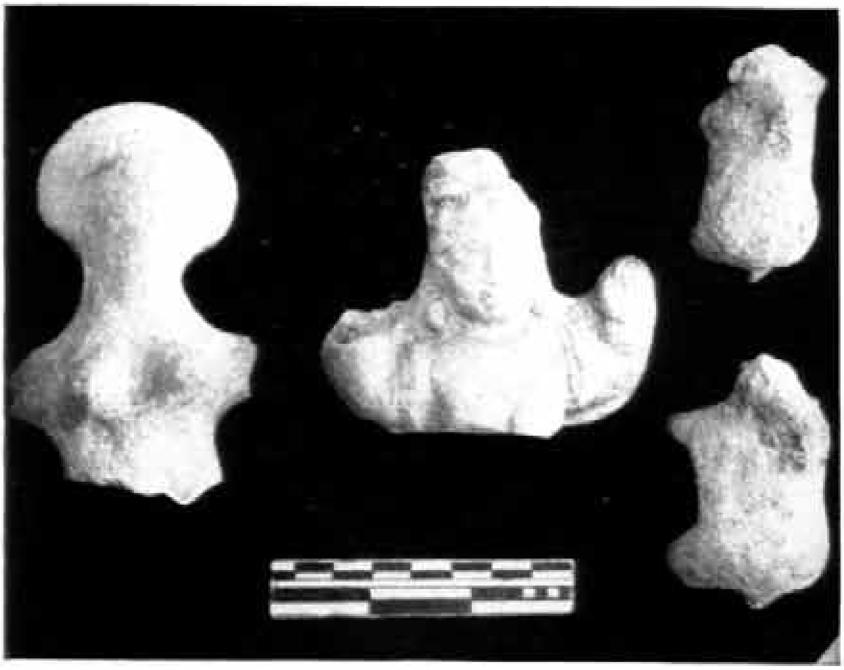


A

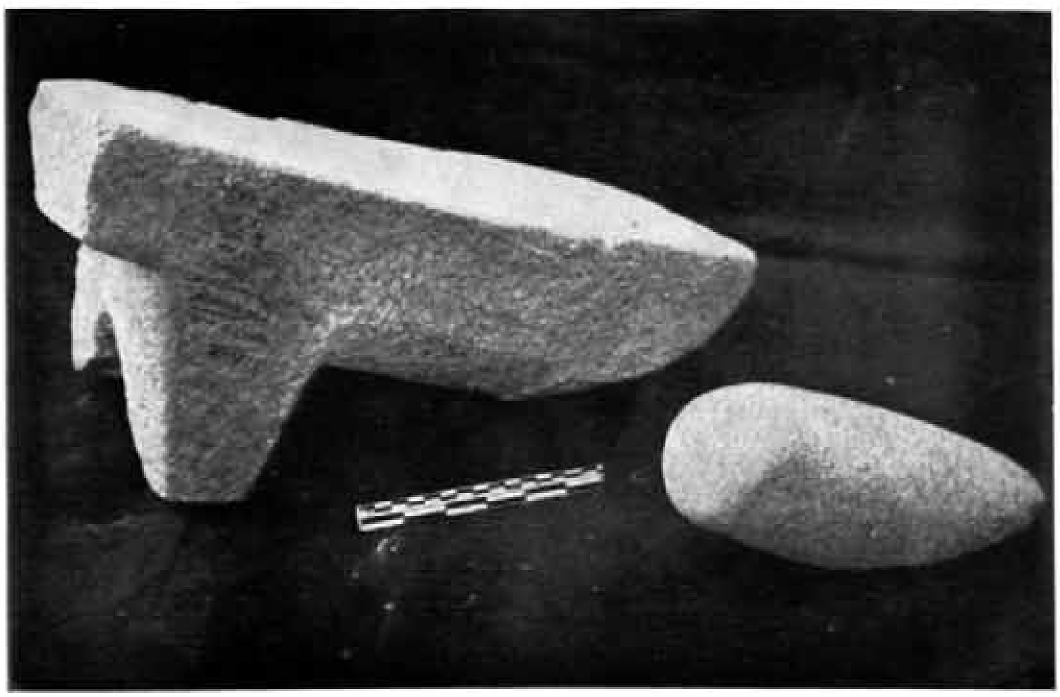


B

Peddabankur : A, *iron objects*; B, *terracotta objects*. *See p. 3*



A



B

Peddabankur : A, *terracotta figurines*; B, *stone objects*. *See p. 3*

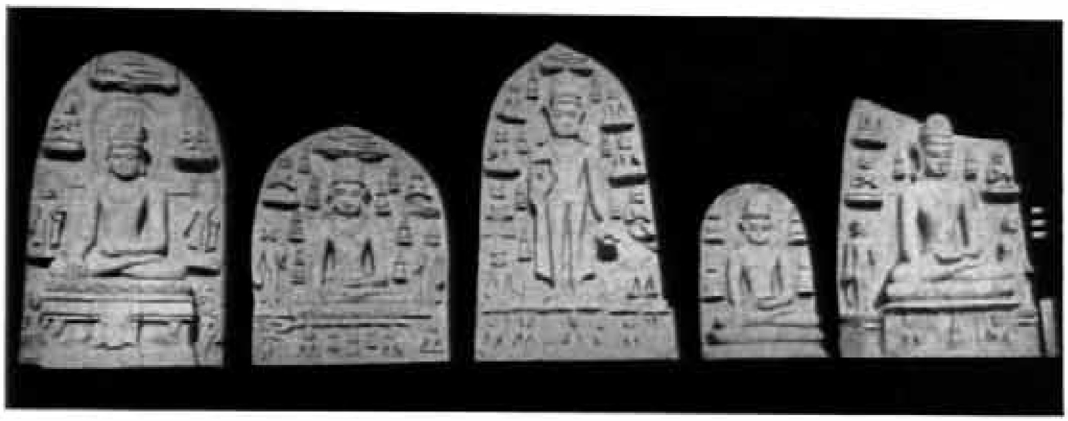


A

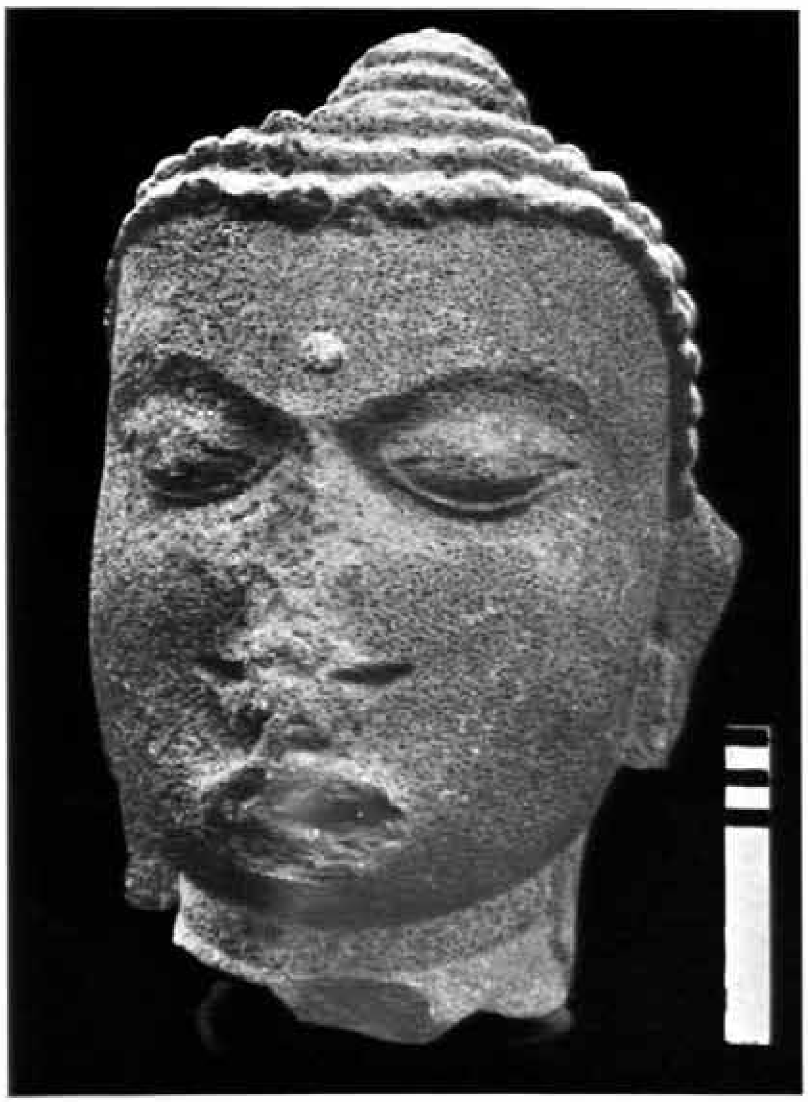


B

Gollathagudi : A, *plinth of a temple*; B, *Jaina shrine*. *See p.* 3



A

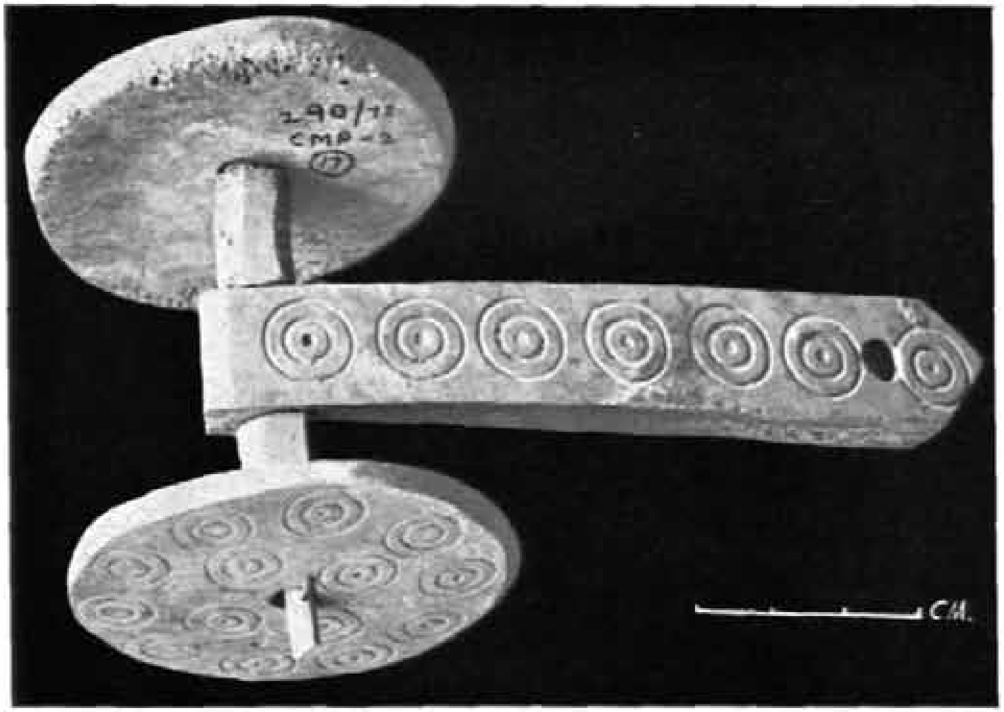


B

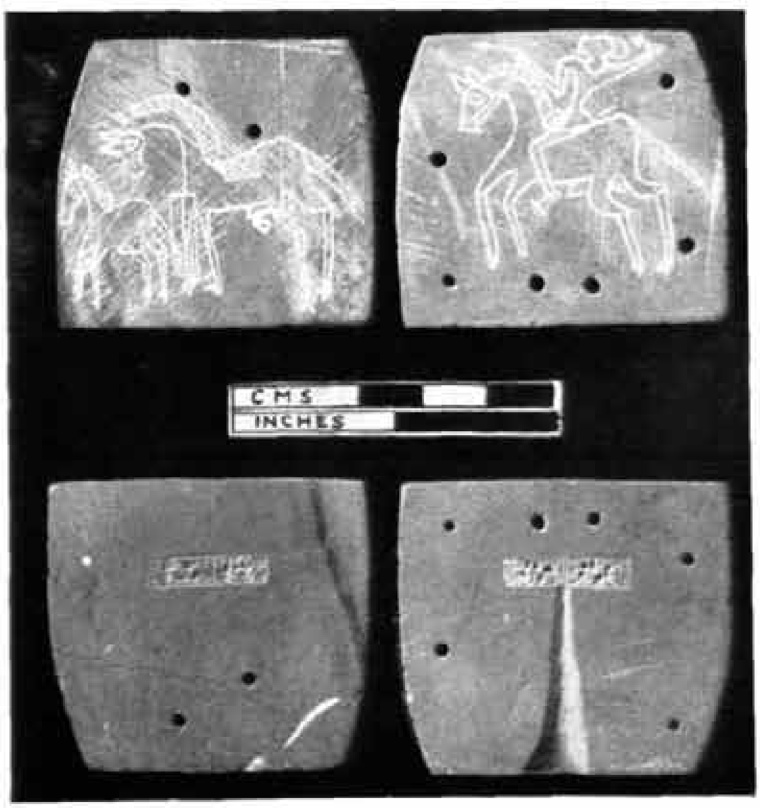
Antichak : A and B, images of the Buddha. See pp. 4 and 5



Champa : ivory figurine, Phase IA. *See p.* 5

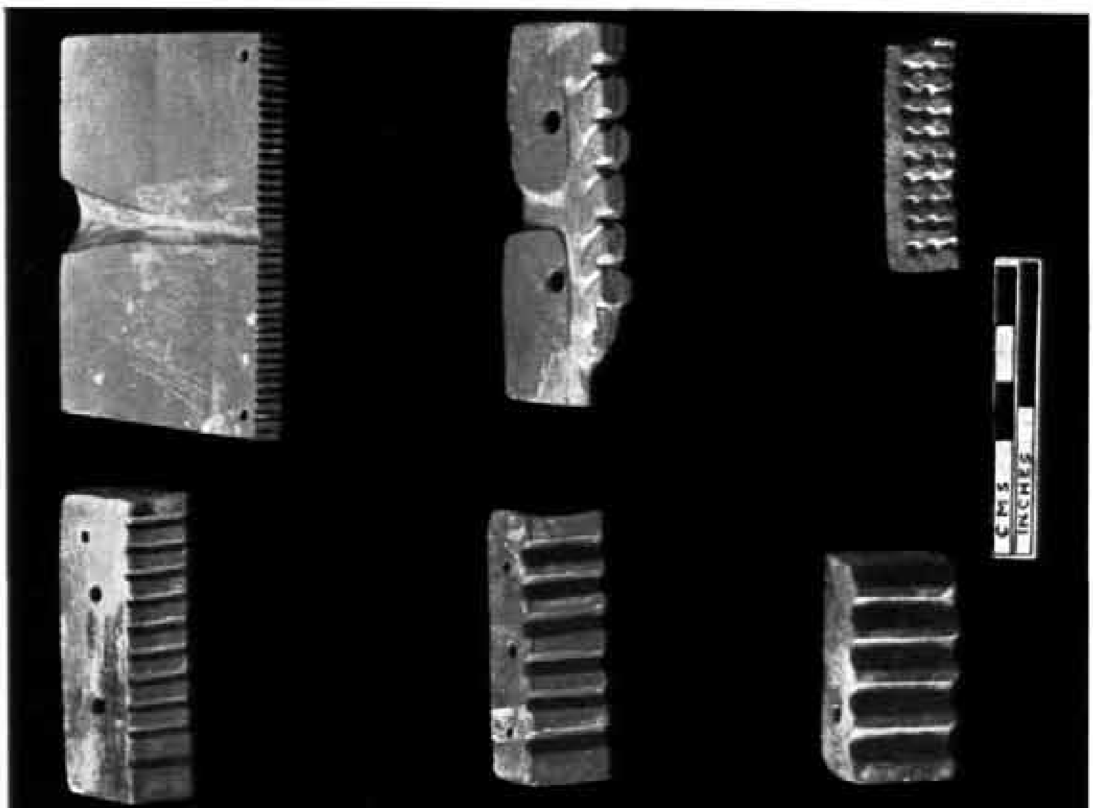


A

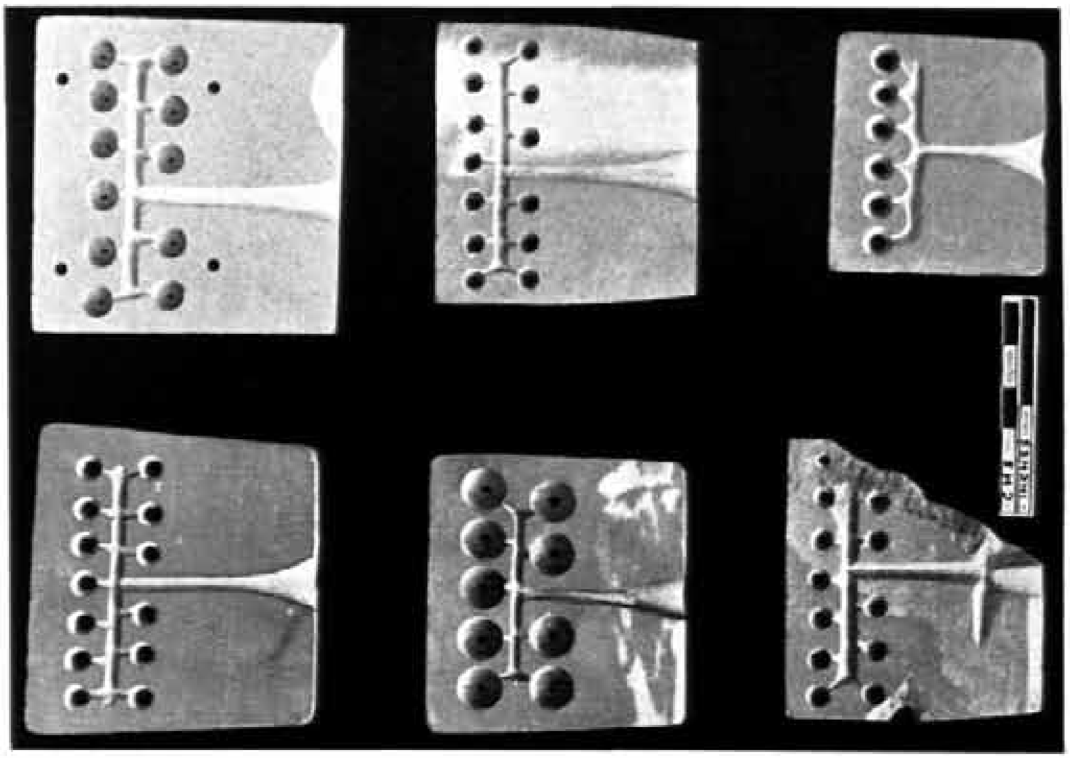


B

Champa : A, *tortoise shell-cart*; B, *stone moulds, both from Phase IA.* *See p.* 5

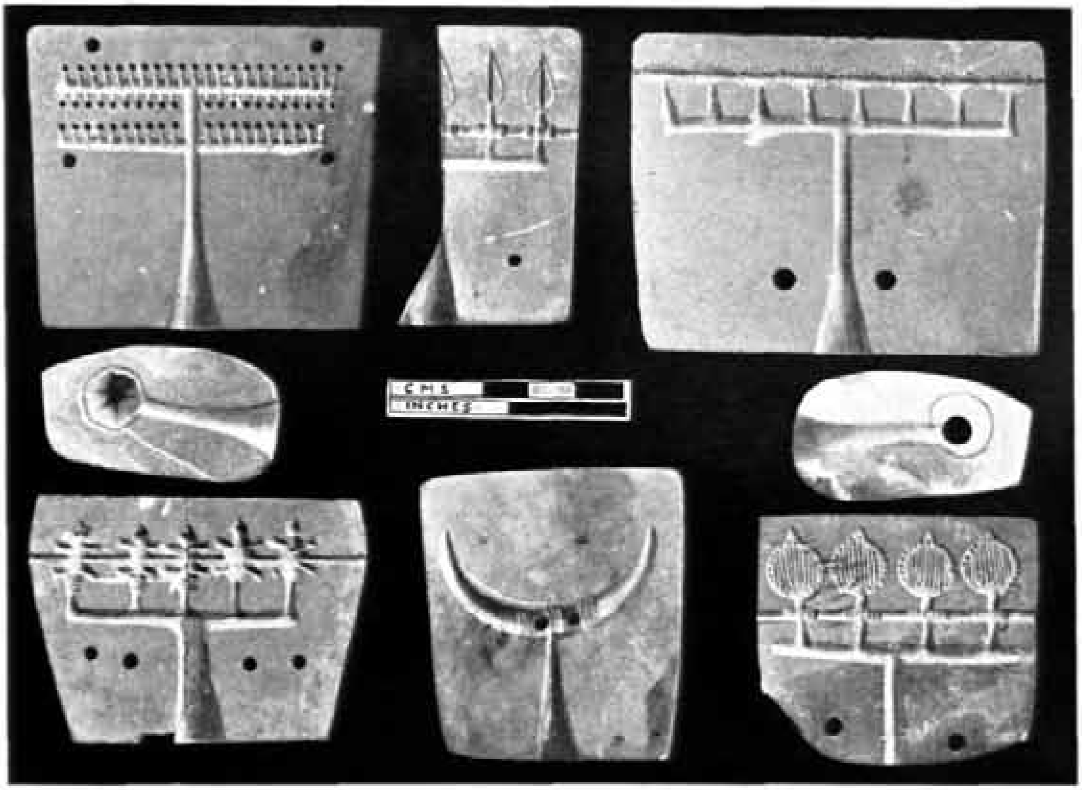


A



B

Champa : stone moulds, both from Phase IA. See p. 5

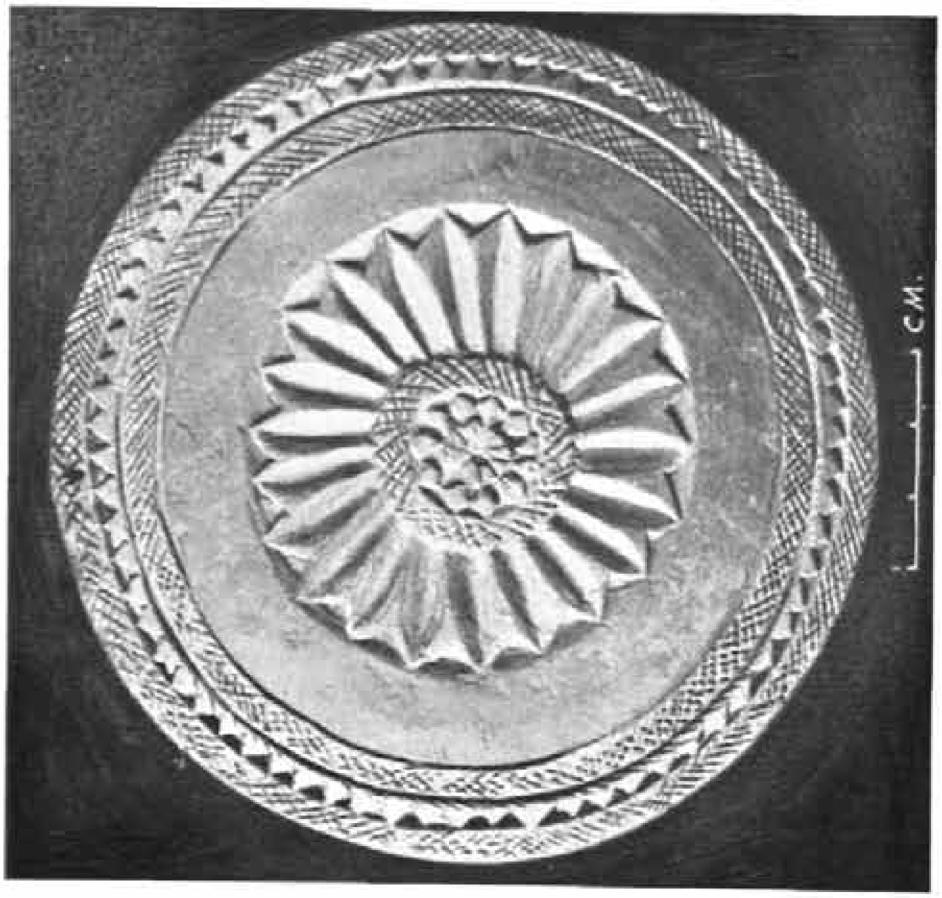


A

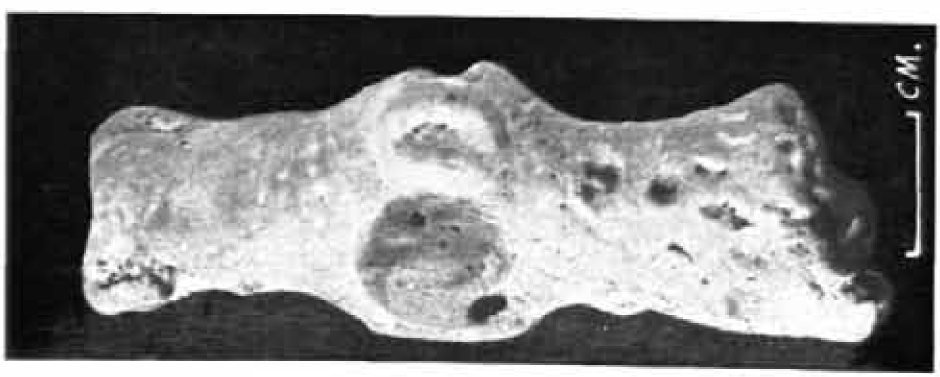


B

Champa : A, stone moulds; B, terracotta figurines, both from Phase IA. *See p. 5*

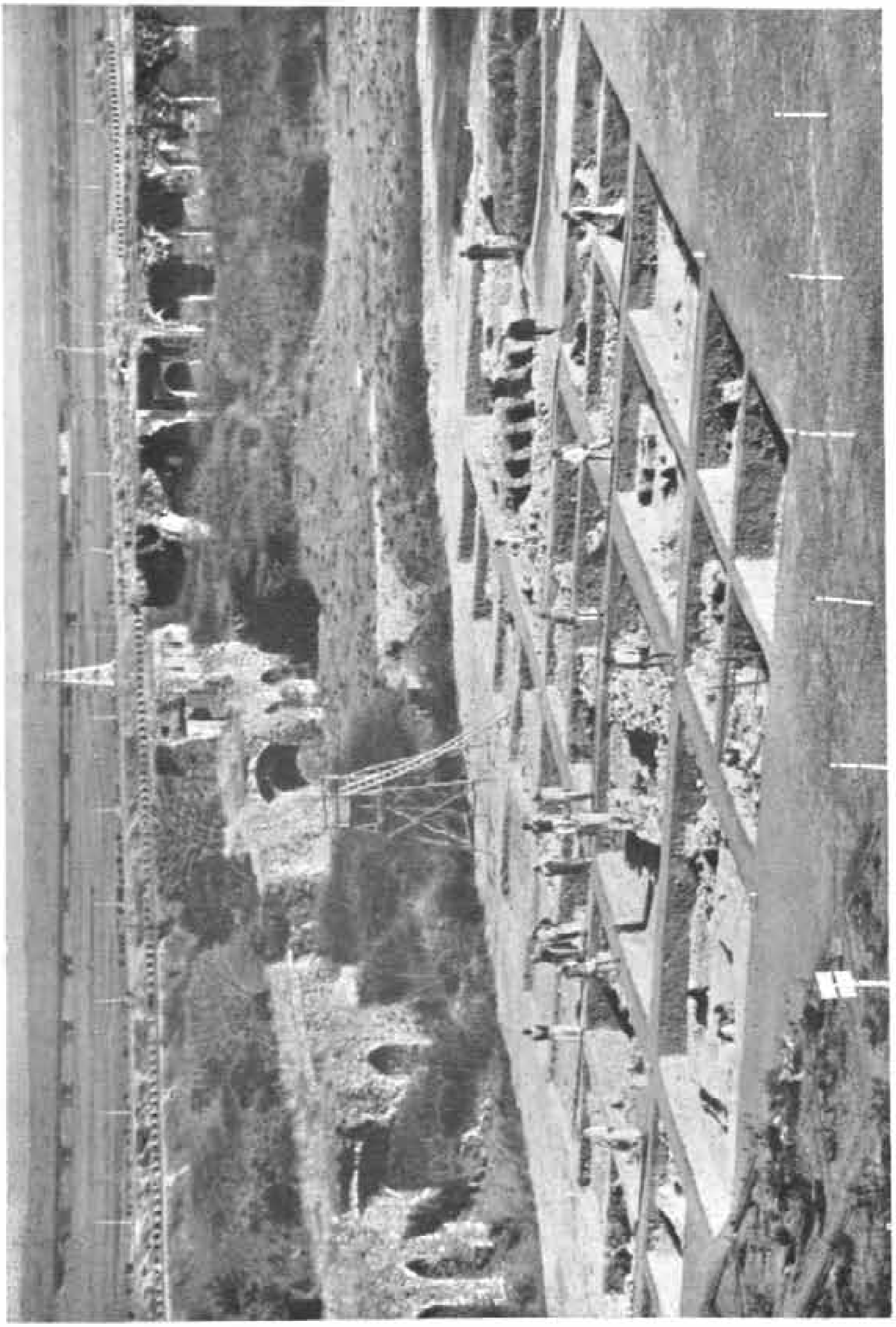


B



A

Chirand : A, *terracotta figurine, Period I.A* ; B, *terracotta skin rubber, Period IV.* *See pp. 6 and 7*



Delhi, Purana Qila : view of excavated trenches. See p. 7

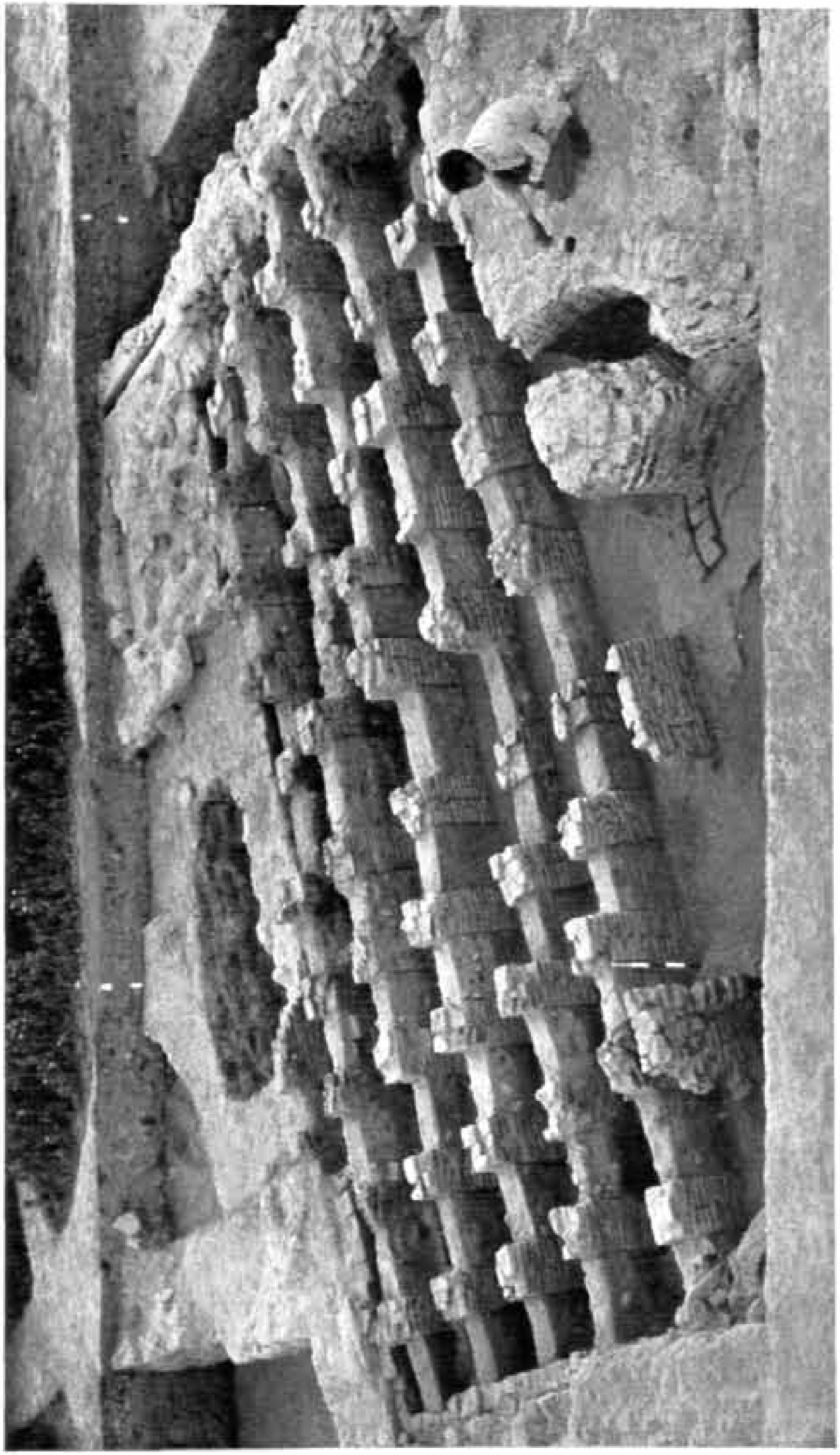


A

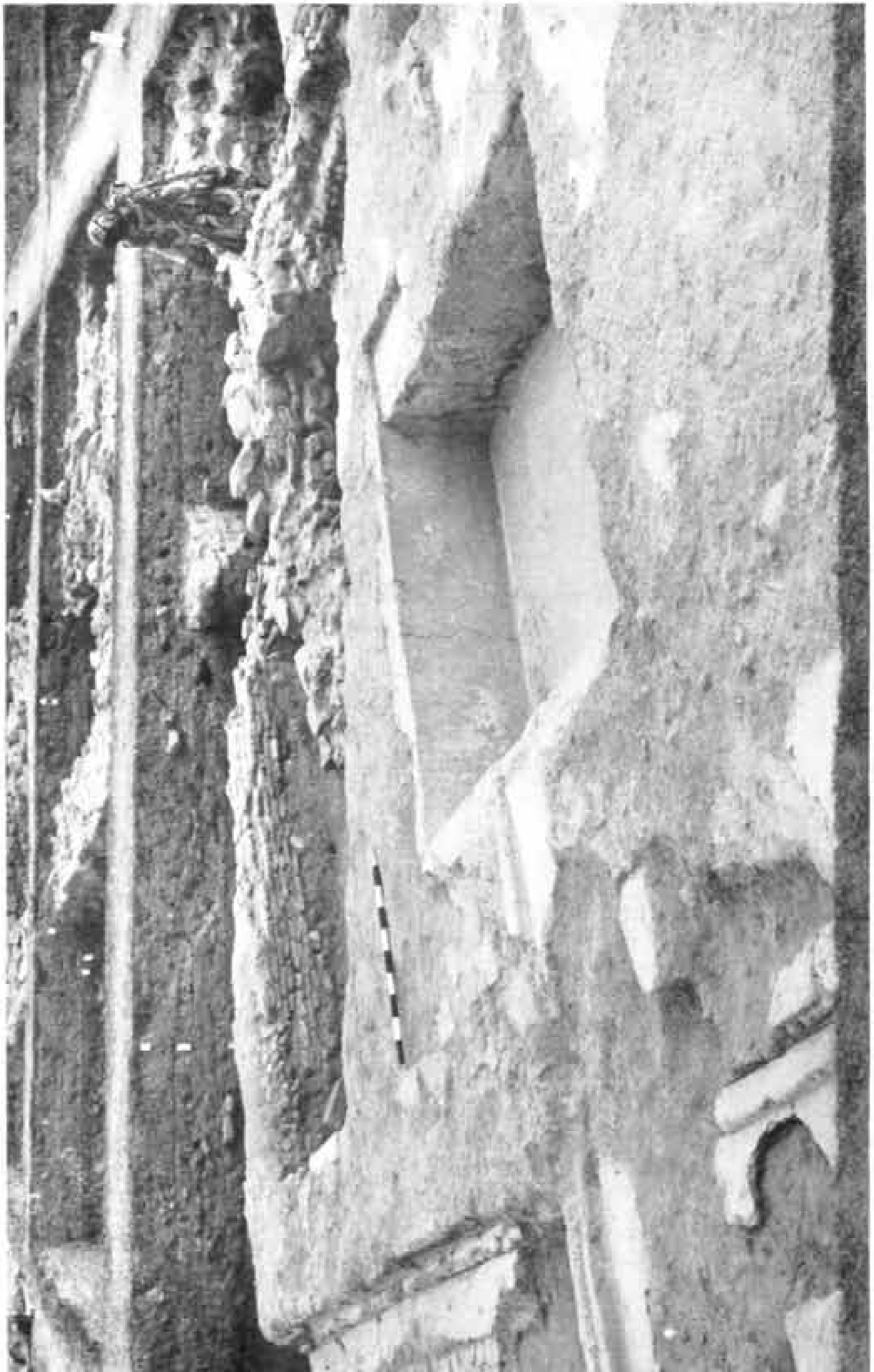


B

Delhi, Purana Qila : A, *stone pavement of the forecourt of a building* ; B, *baked brick structure, both Mughal Period.* *See p. 7*



Delhi, Purana Qila : hammam, Mughal Period. *See p. 7*



Delhi, Purana Qila : house with a cistern, Mughal Period. *See p. 7*



A



B

Delhi, Purana Qila : A, terracotta finials; B, gold coin, both Mughal Period. See p. 7

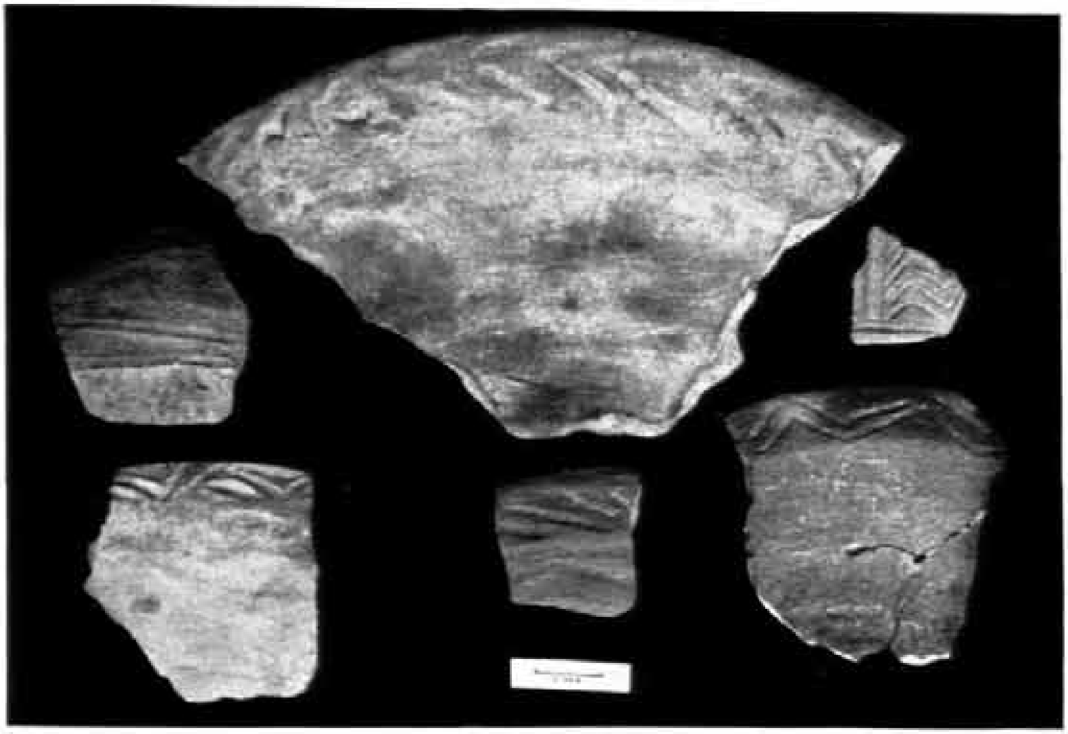


A

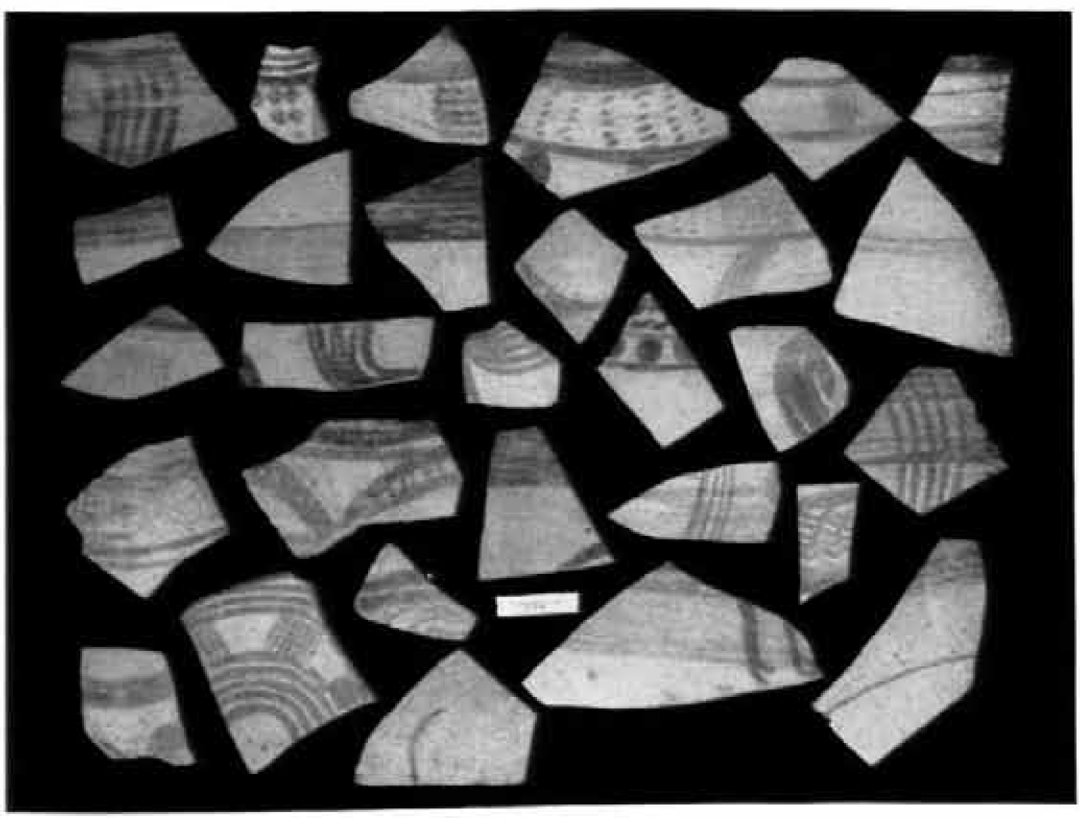


B

Delhi, Purana Qila : A, *Chinese Porcelain, Mughal Period*; B, *coin hoard, late Rajput-early Sultanate rulers*. *See p. 7*

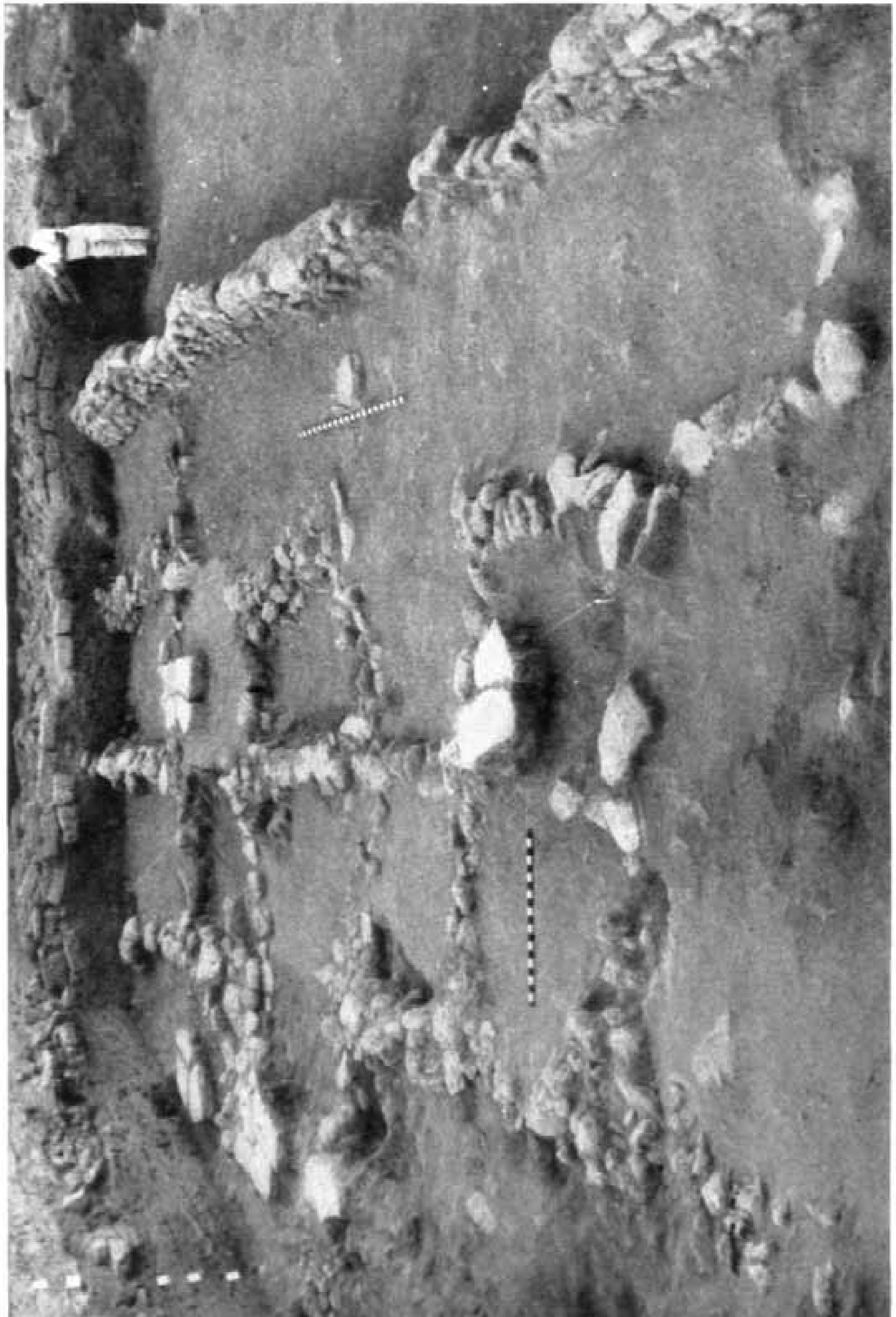


A



B

Prabhas Patan : A, incised pottery, Period I; B, painted pottery, Period II. *See p. 12*



Prabhas Patan : remains of stone structures, Period III. See p. 12



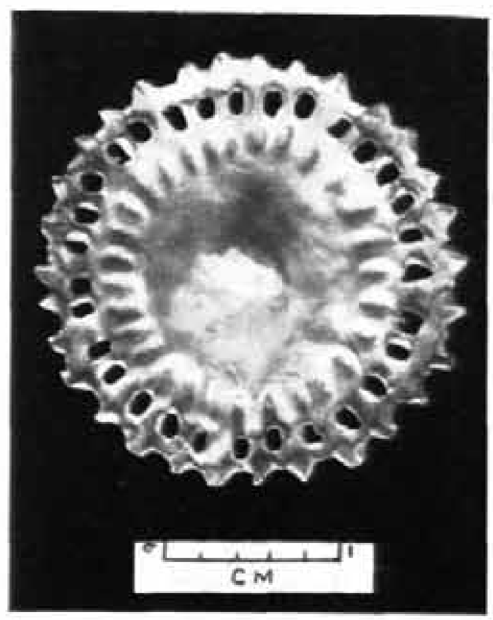
A



B



C



D

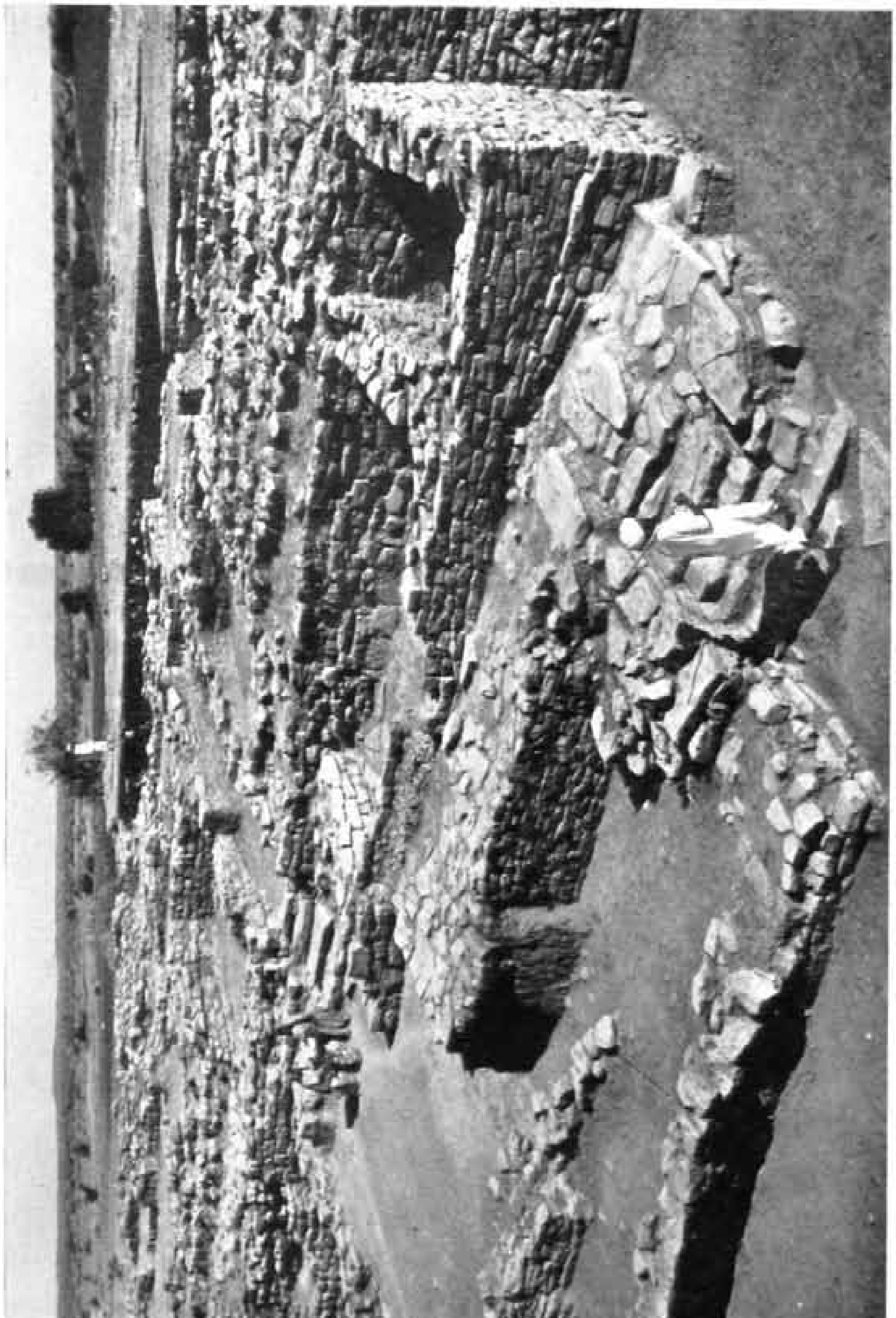
Prabhas Patan : A *and* B, *steatite amulet, respectively obverse and reverse* ; C, *obsidian flake; and* D, *gold ornament, all from Period III.* *See p. 13*



Surkotada : drains, Sub-period IA. *See p. 16*



Surkotada : general view of the fortified settlement. In the mid-distance is the citadel while to the extreme right is the residential complex. *See p. 18*



Surkotada : gate-way complex, Sub-period IC. *See p. 18*

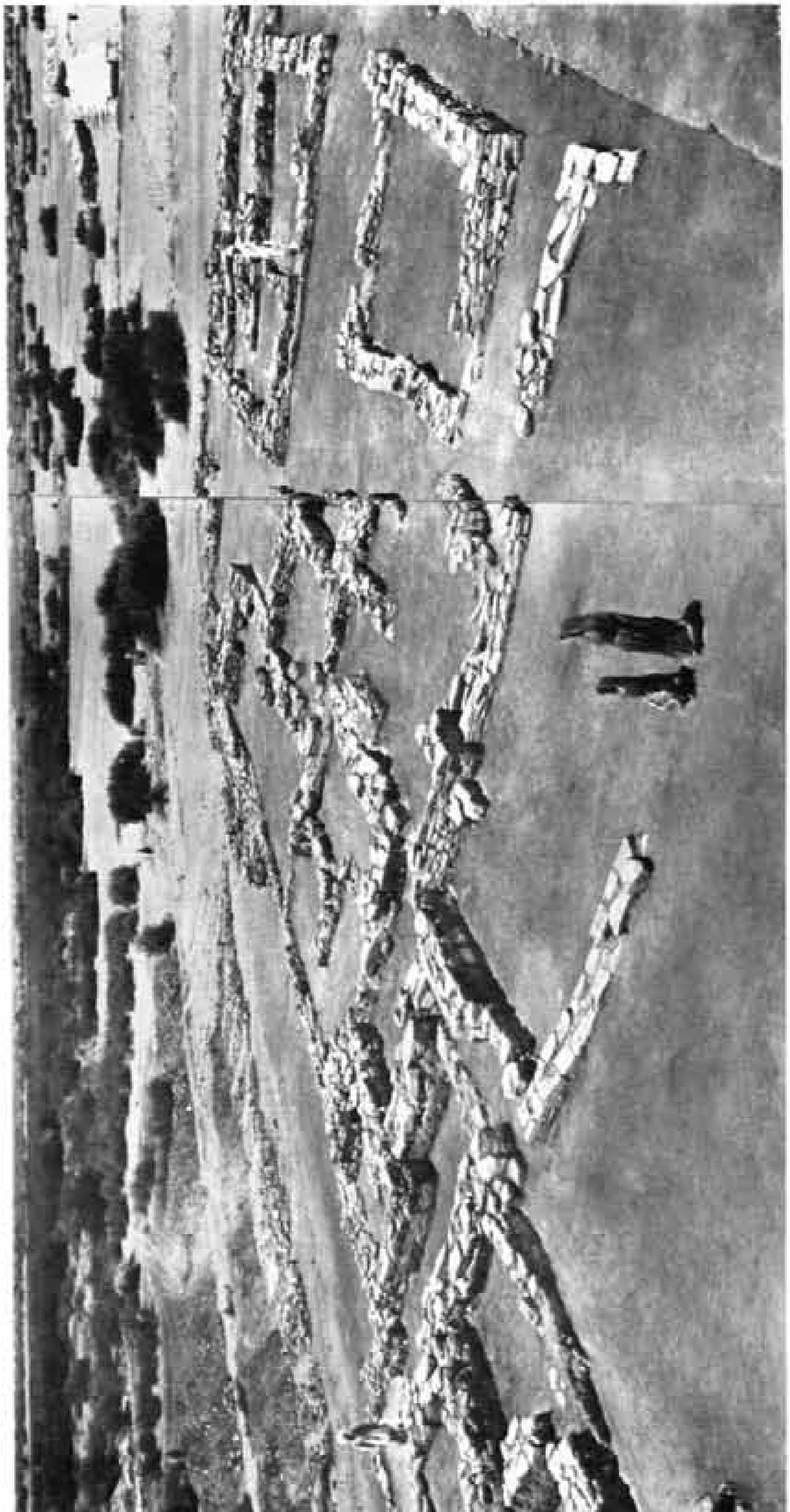


A

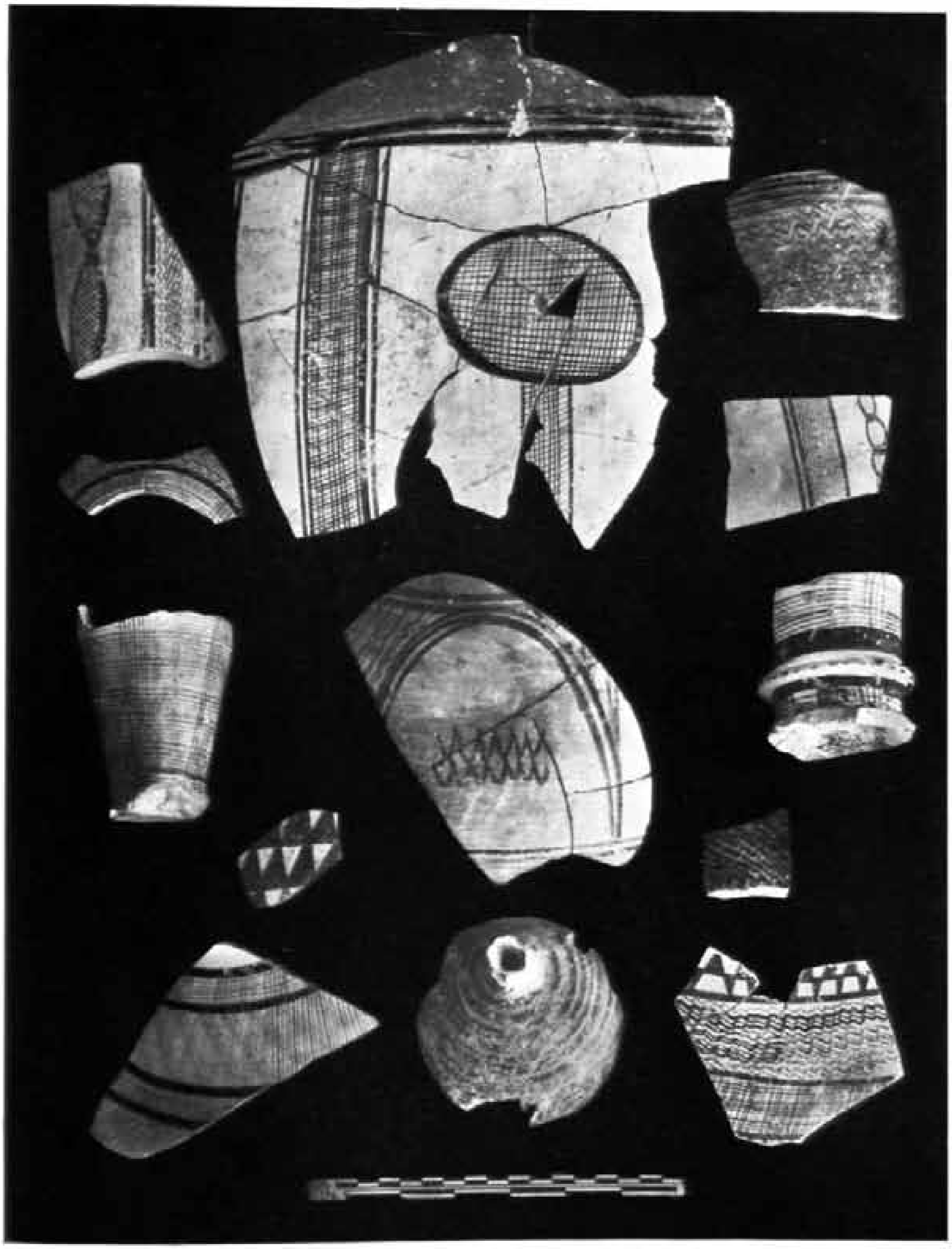


B

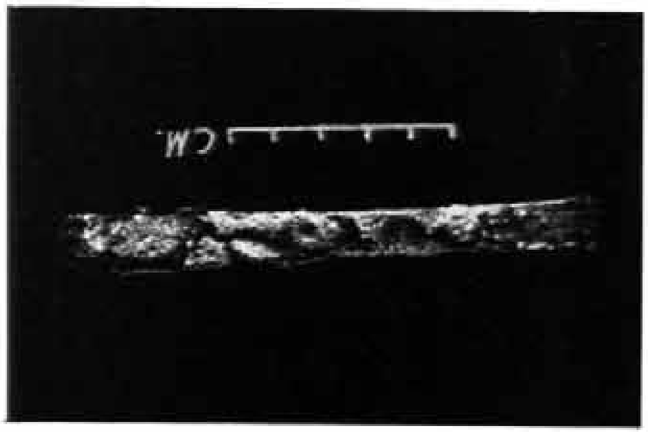
Surkotada : A, *semi-circular structure blocking the entrance towards the residential complex*; B, *terracotta tank, both Sub-period IC.* *See p. 18*



Surkotada : house-remains inside the citadel, Sub-Period IC. *See p. 18*



Surkotada : non-Harappan pottery. *See p. 16*



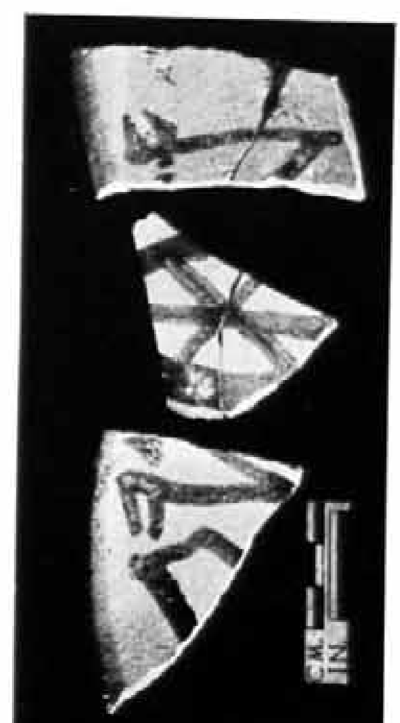
B



A

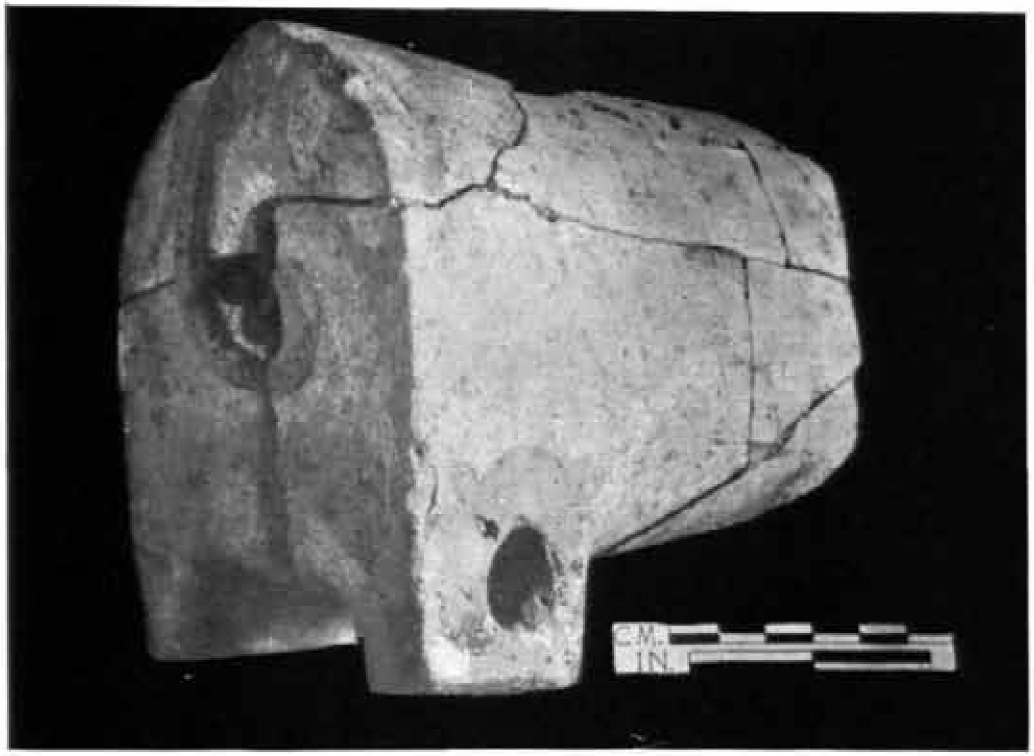


D E



C

Surkotada : A, *Copper celt, Sub-Period IB*; B, *copper chisel, Sub-period IC*; C, *potsherds painted with Harappan script, Sub-period IA*; D, *steatite seal, Sub-period IA*; and E, *terracotta seal, Sub-period IC*. *See pp.* 16 *and* 18



A





B C

Surkotada : A, *terracotta wheeled bull*; B, *Copper ornaments*; *and* C, *bones of horse, all from Sub-period IC. See pp. 18 and 21*



A

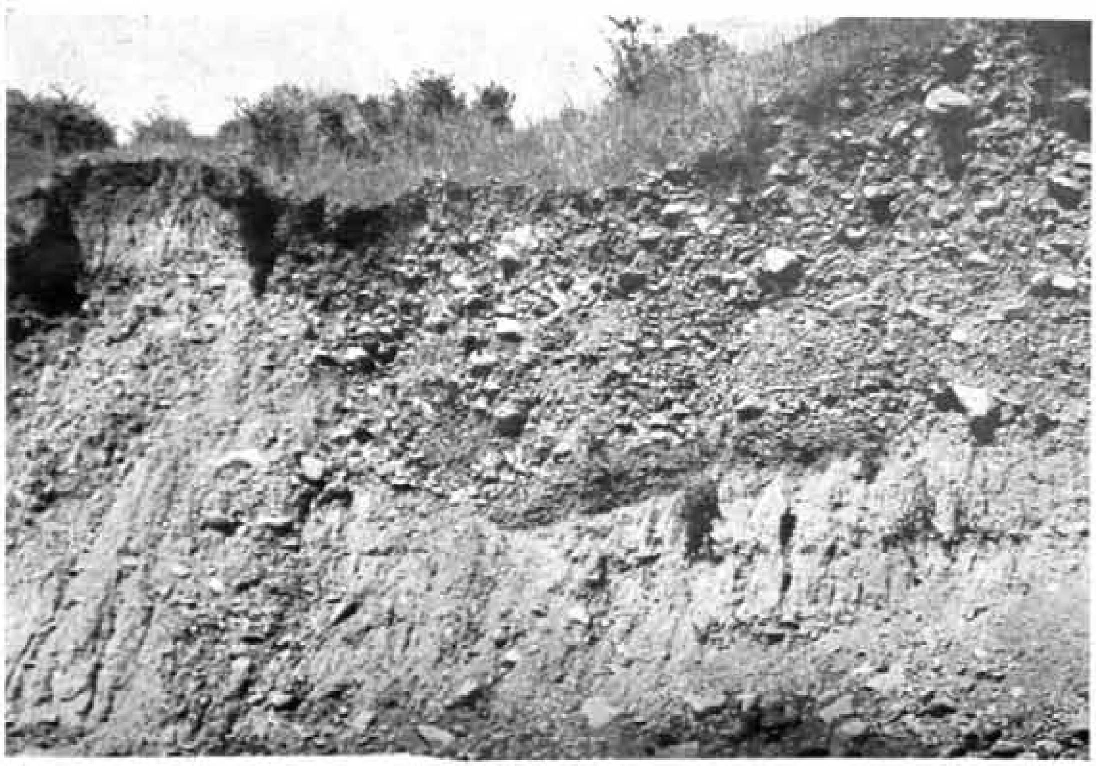


B

A, *terraces between Kalka and Ratpur;* B, *river-section near Marhanwala.* *See p. 23*



A

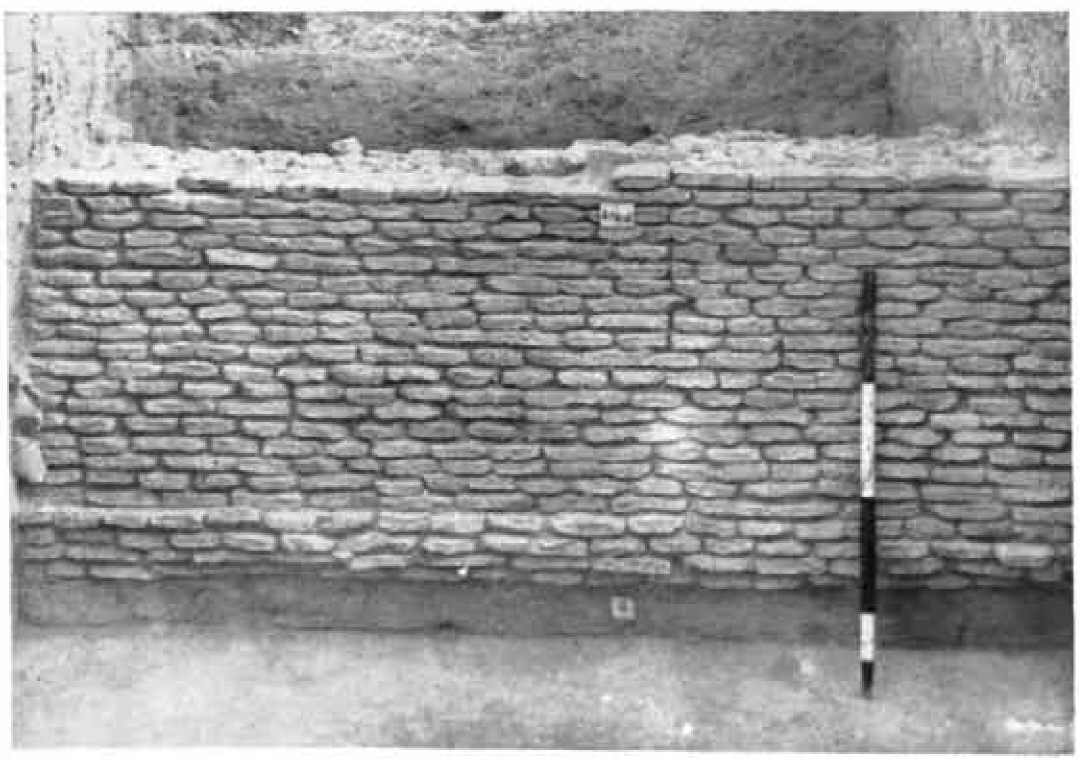


B

Khandiala Khad : A *and* B, *exposed sections of T3 See p. 23*



A



B

Raja Karan Ka Qila, Kurukshetra : A, *terracotta figurines, Period II*; B, *baked brick fortification wall, Period III*. *See p. 24*

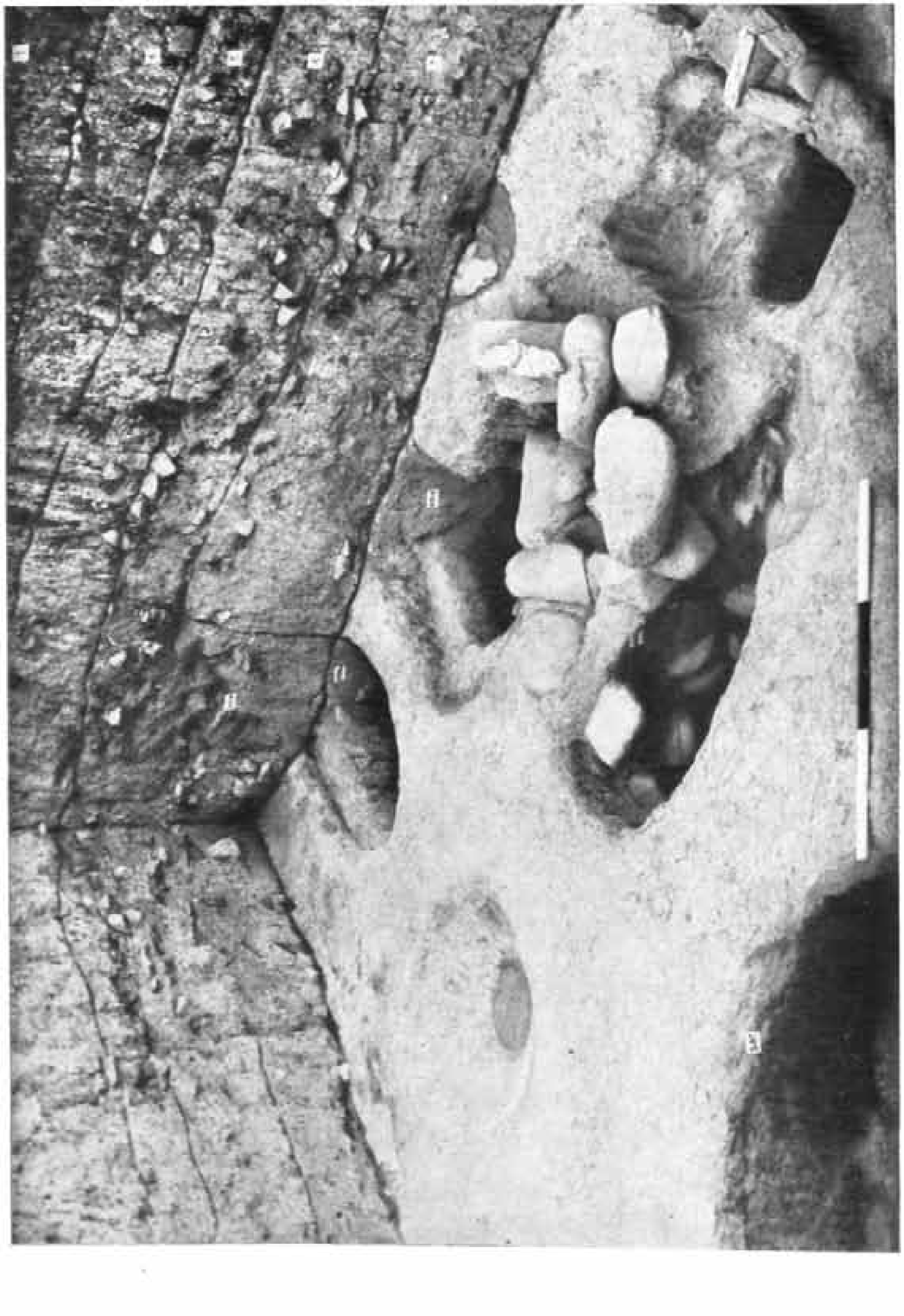


A



B

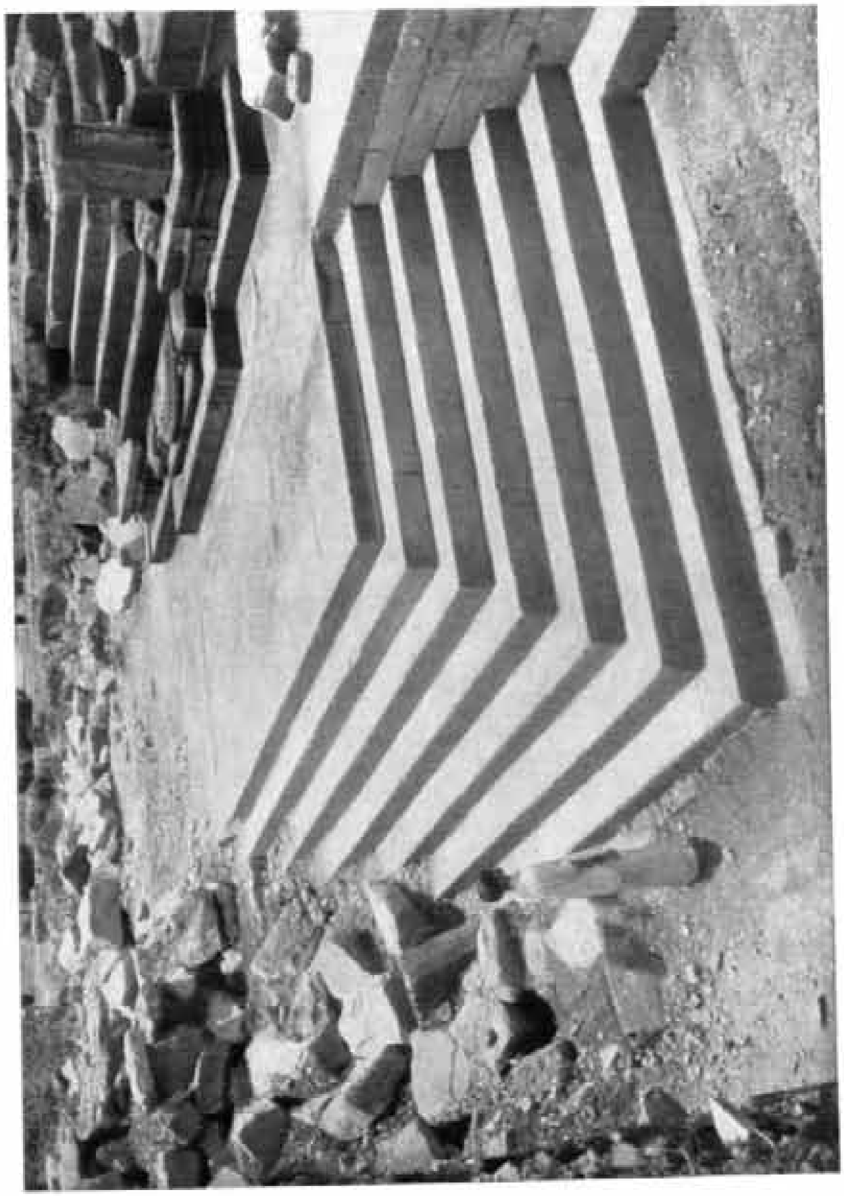
Sutah : A, bifacial handaxe ; B, Burzahom, dwelling-pits, post-holes and drains. *See p. 24*



Burzahom : hearths. See p. 24



B



A

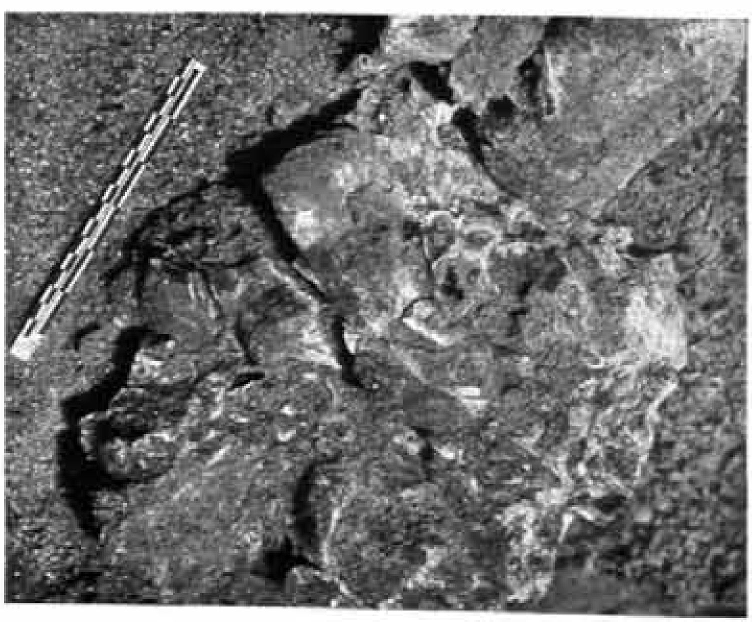
Vijaya Mandal Mosque, Vidisha : A, *steps and adhishthana of the temple* ; B, *Ganesa.* *See p.* 31



A

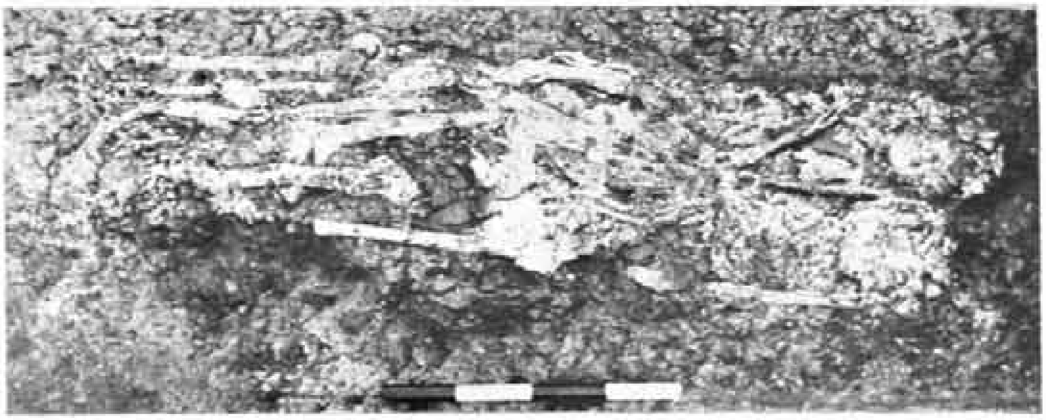


B

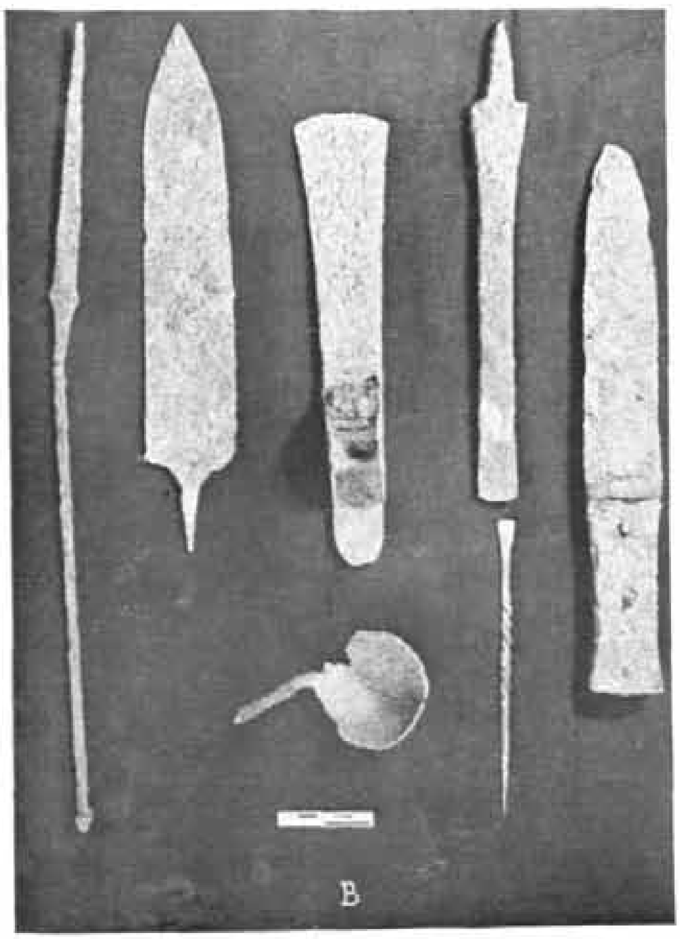


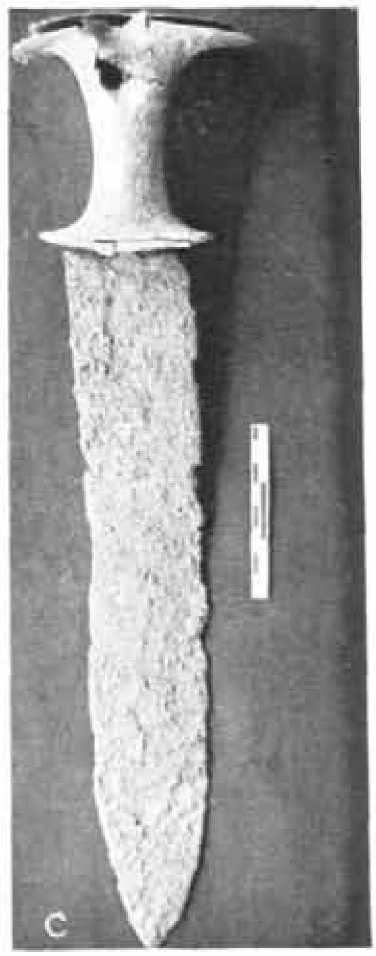
C

Fossil remains : A *and* B, *from Ganjapur* ; C, *from Tadul.* *See p.* 32

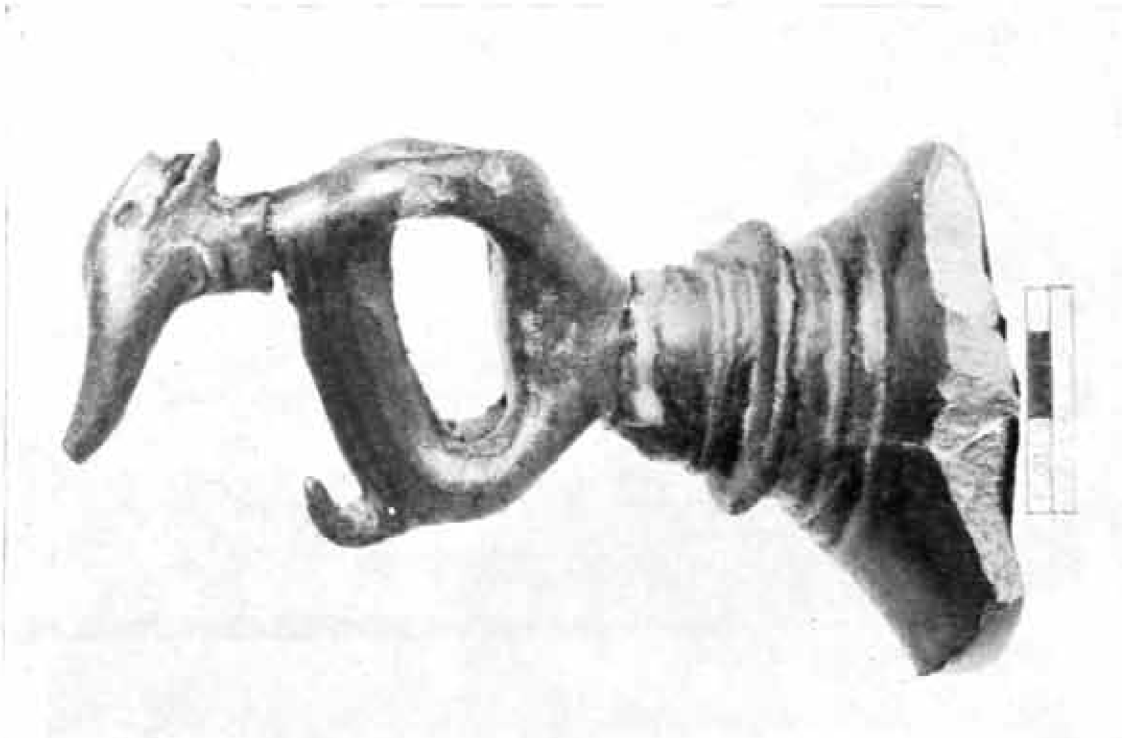


A

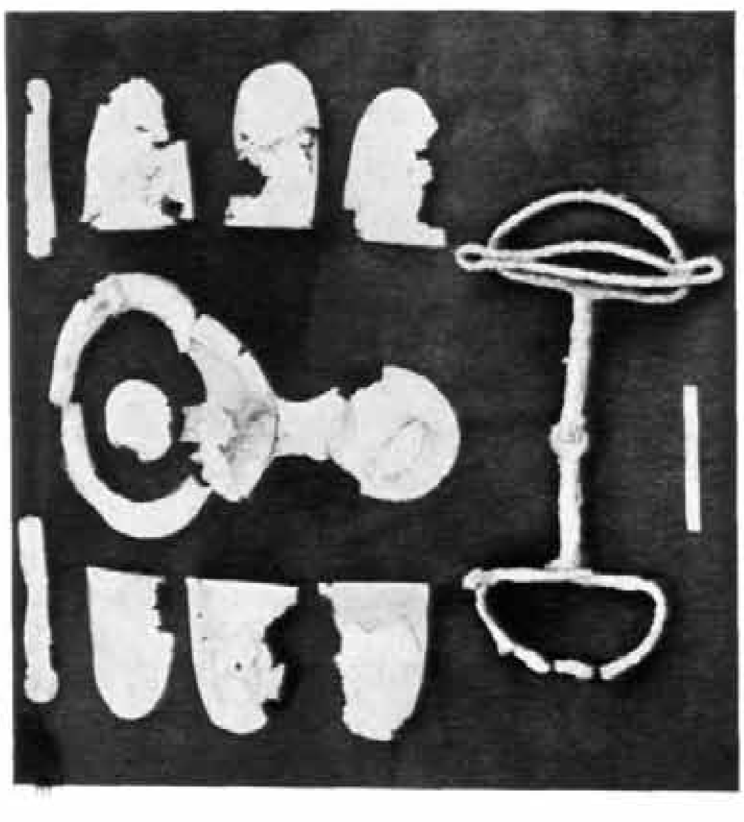




Mahurjhari : A, *Megalith VI, skeletal remains* ; B, *iron objects* ; C, *iron dagger with copper handle.* *See pp. 33 and 35*

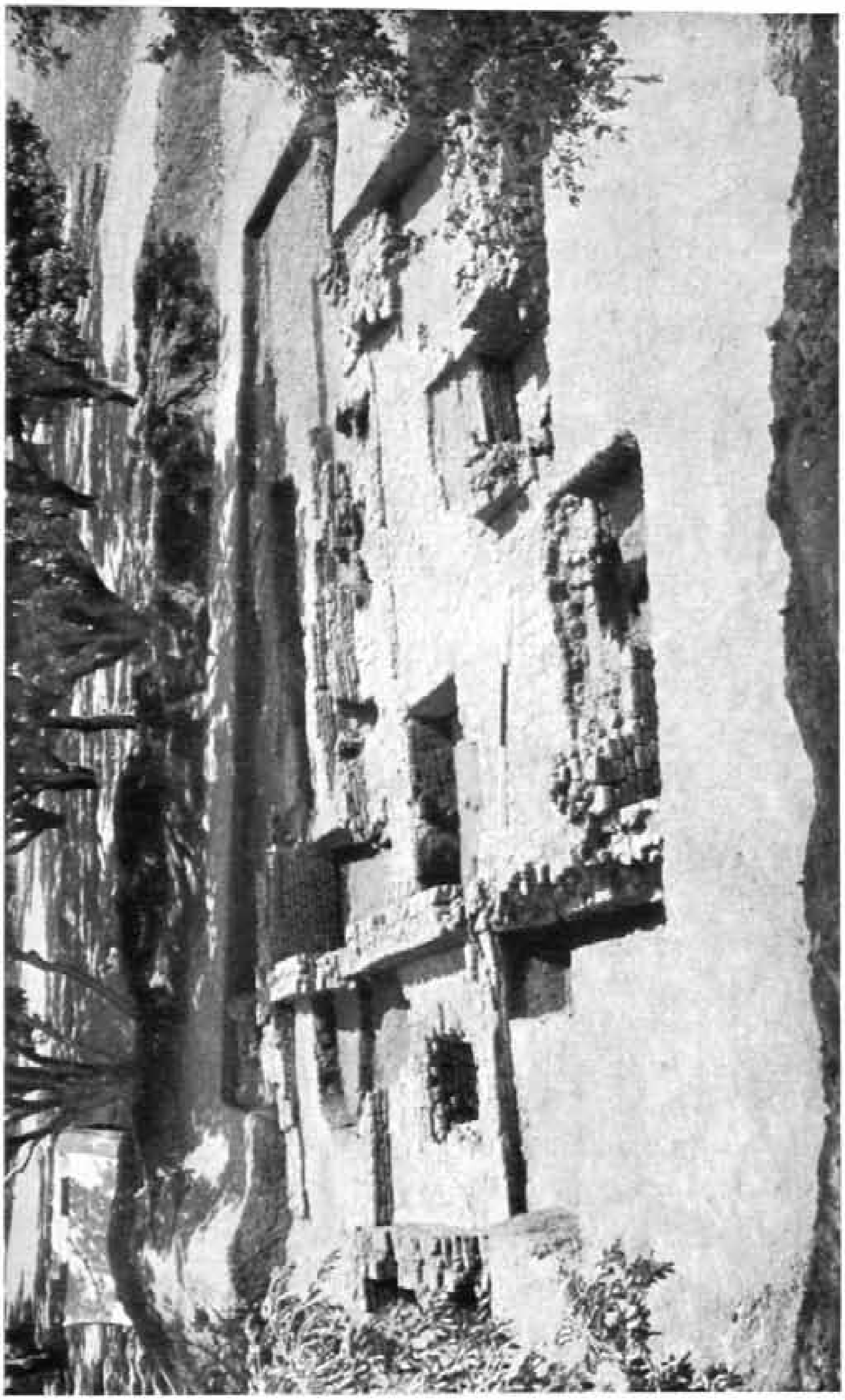


B

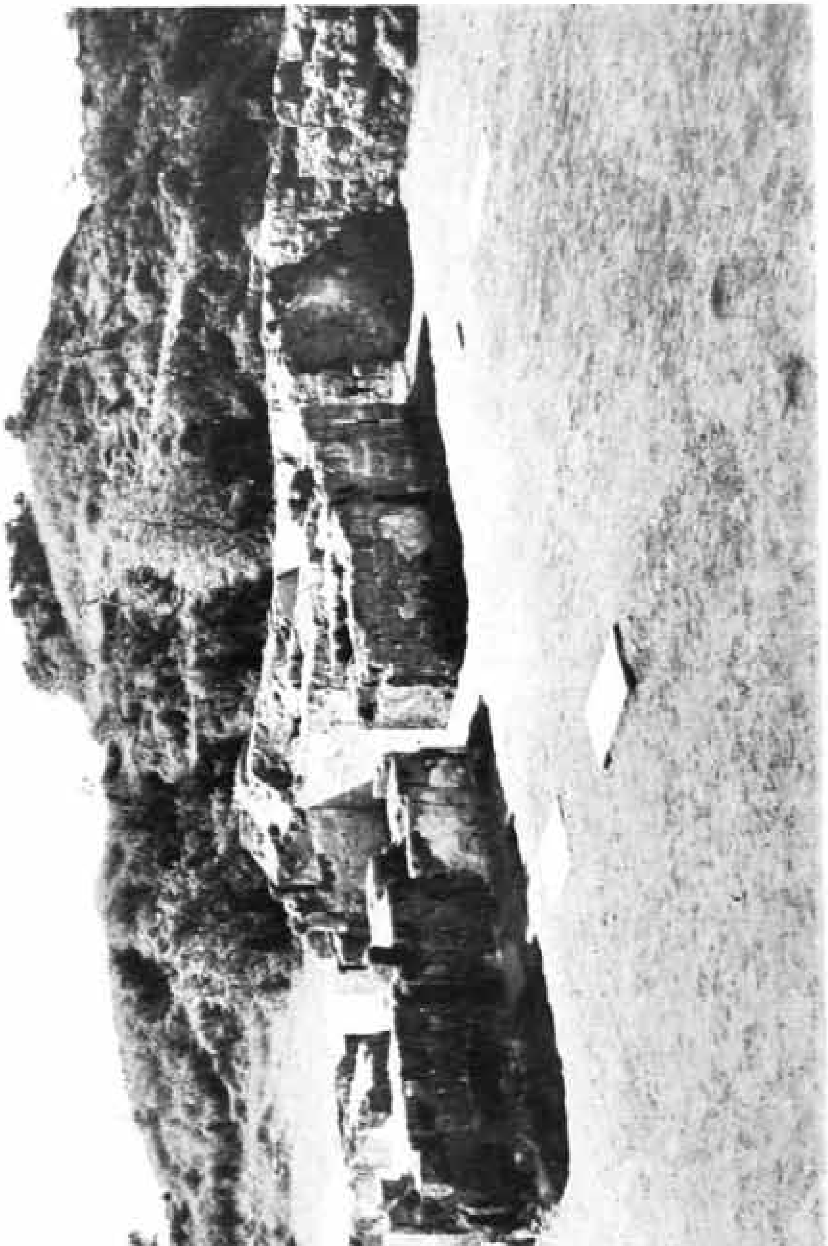


A

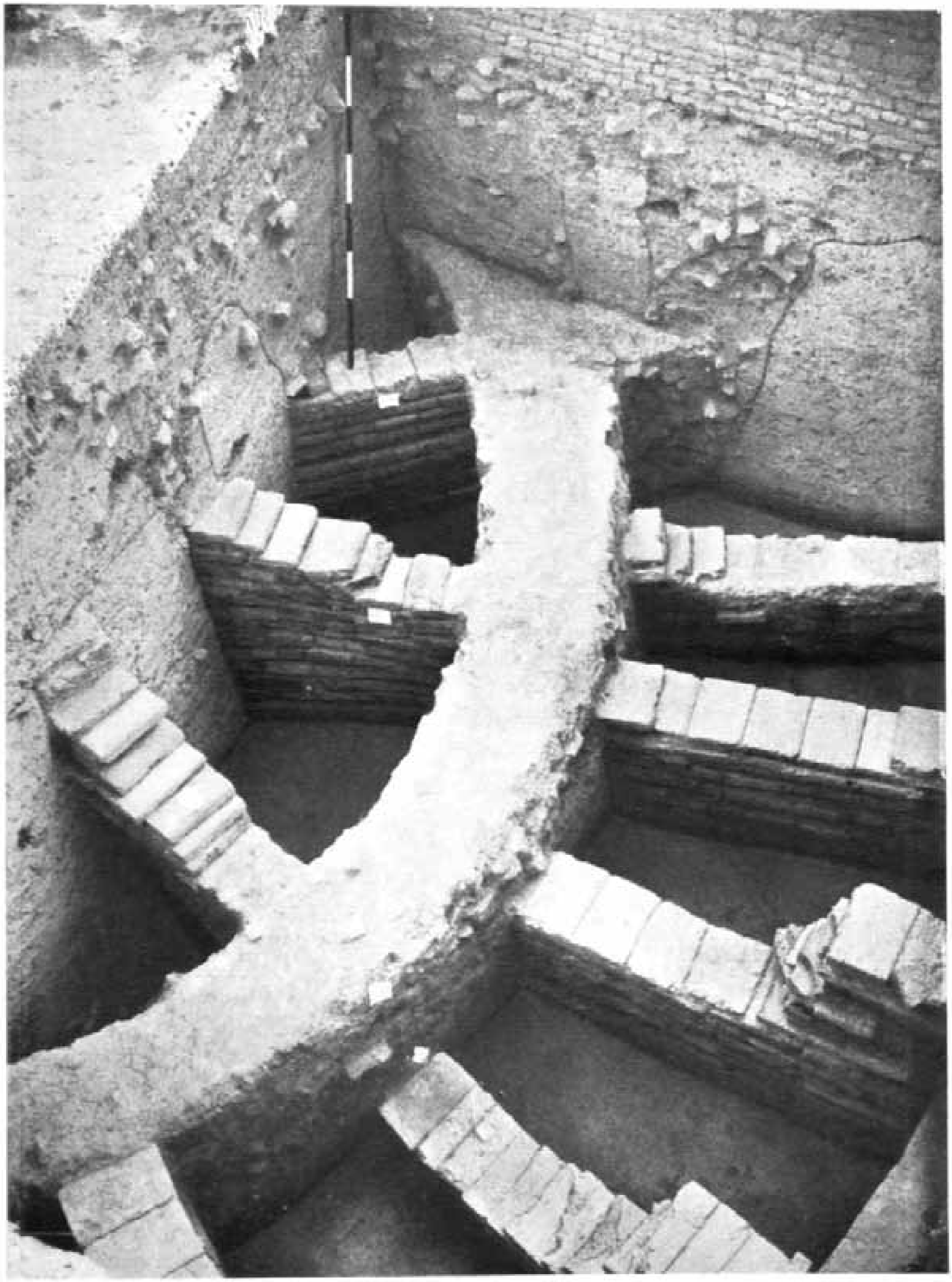
Mahurjhari : A, horse bit and copper horse furniture; B, pottery finial. See p. 33



Vadgaon-Madhavpur : rectangular structures. *See p. 38*



Nagar : Sivappa Nayaka's palace. *See p. 39*



Sanghol : plan of Buddhist stupa. *See p. 39*



A



B

Kanchipuram : A, *amphorae* ; B, *bone objects*. *See p. 43*

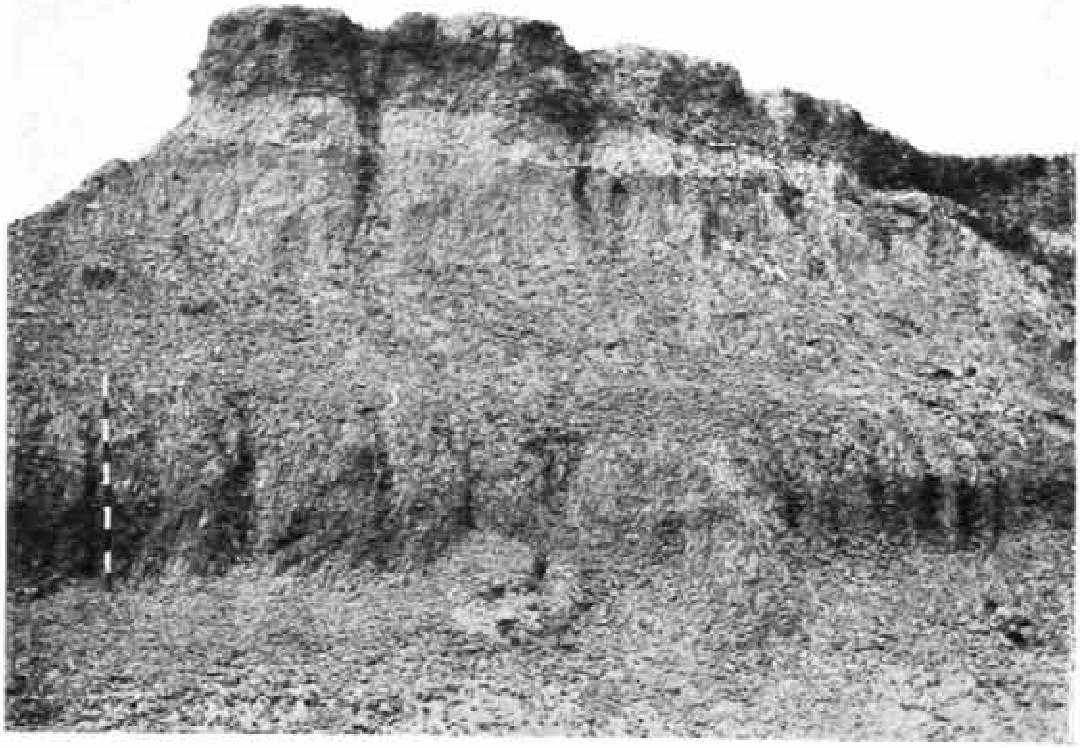


A

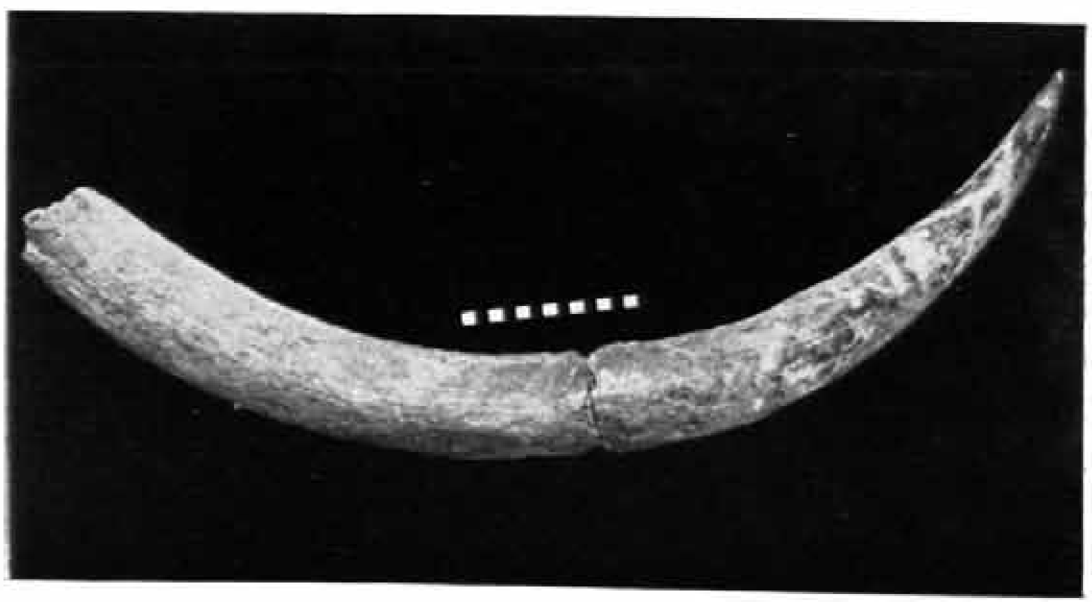


B

Kanchipuram : A *and* B, *terracotta figurines*. *See p. 43*



A

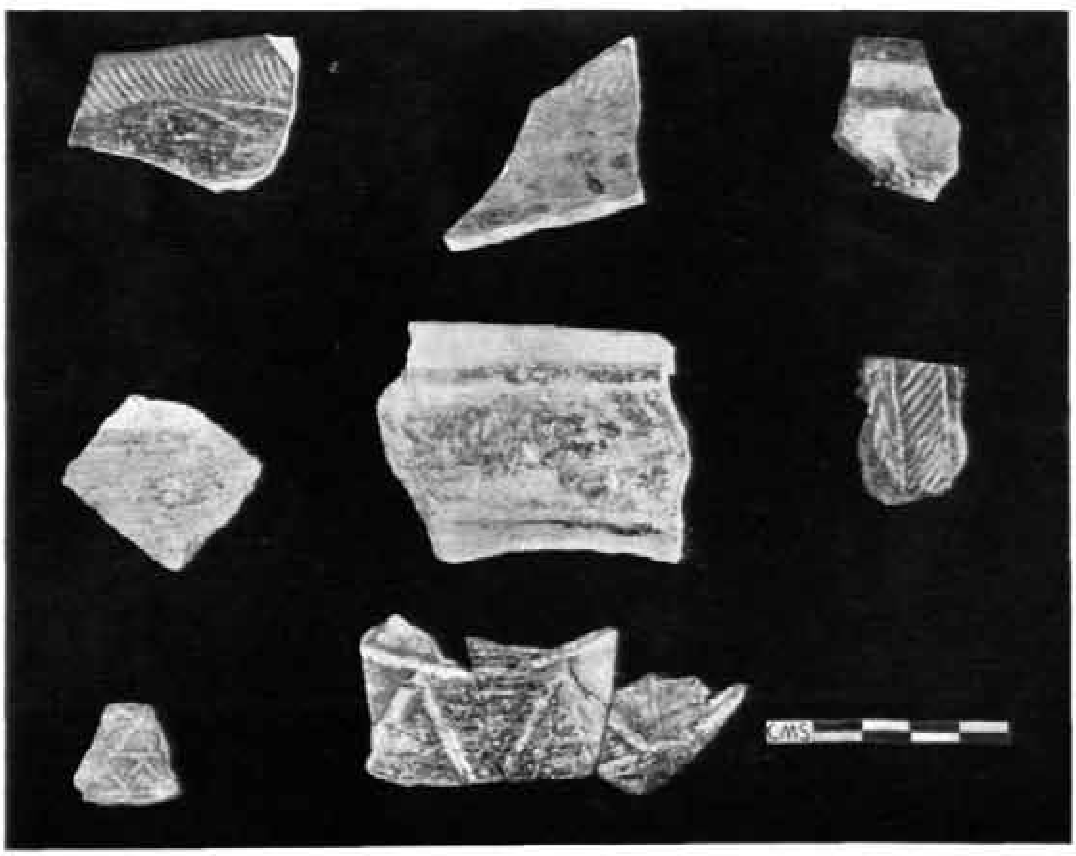


B

A, *exposed section near Belan*; B, *elephant tusk from Gravels*. *See p. 43*



A



B

Koldihawa : A, *floor with post-holes* ; B, *painted and incised pottery.* *See p.* 44



Koldihawa : microliths. *See p. 44*



A



B

Piprahwa : A, *brick-sealed pits* ; B, *two dishes in a brick container.* *See p.* 45



A



B

Piprahwa : A, soap stone casket in the brick container; B, another casket and dishes. *See p. 45*

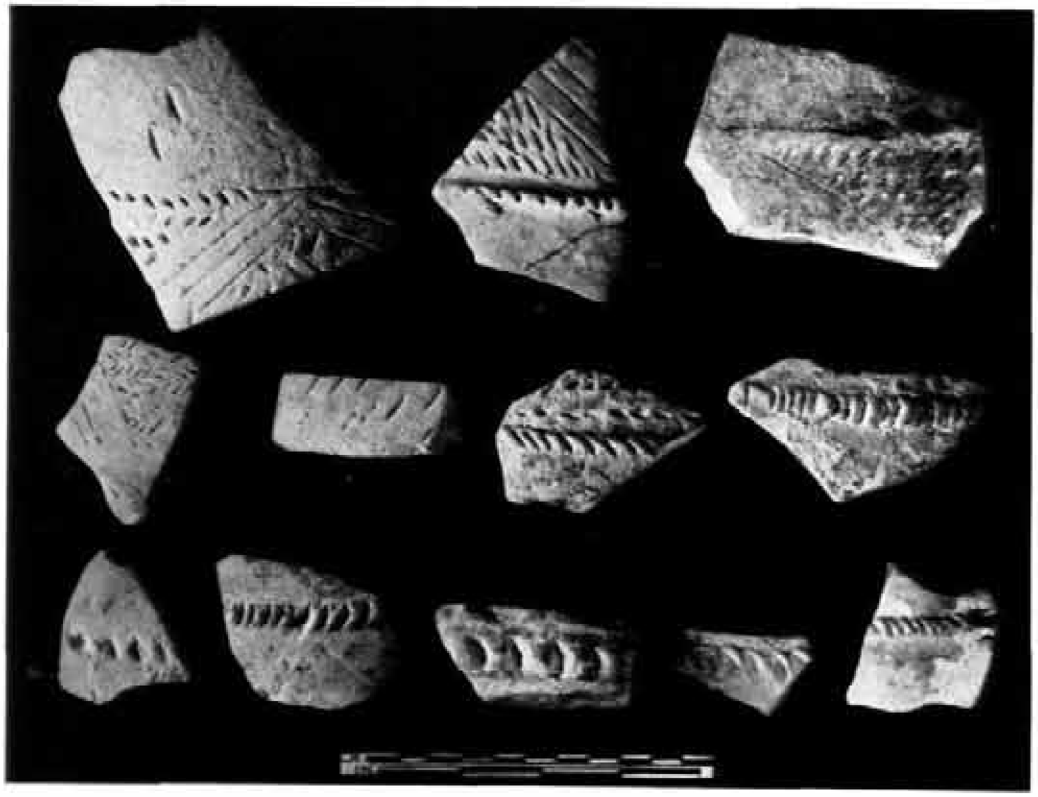


A

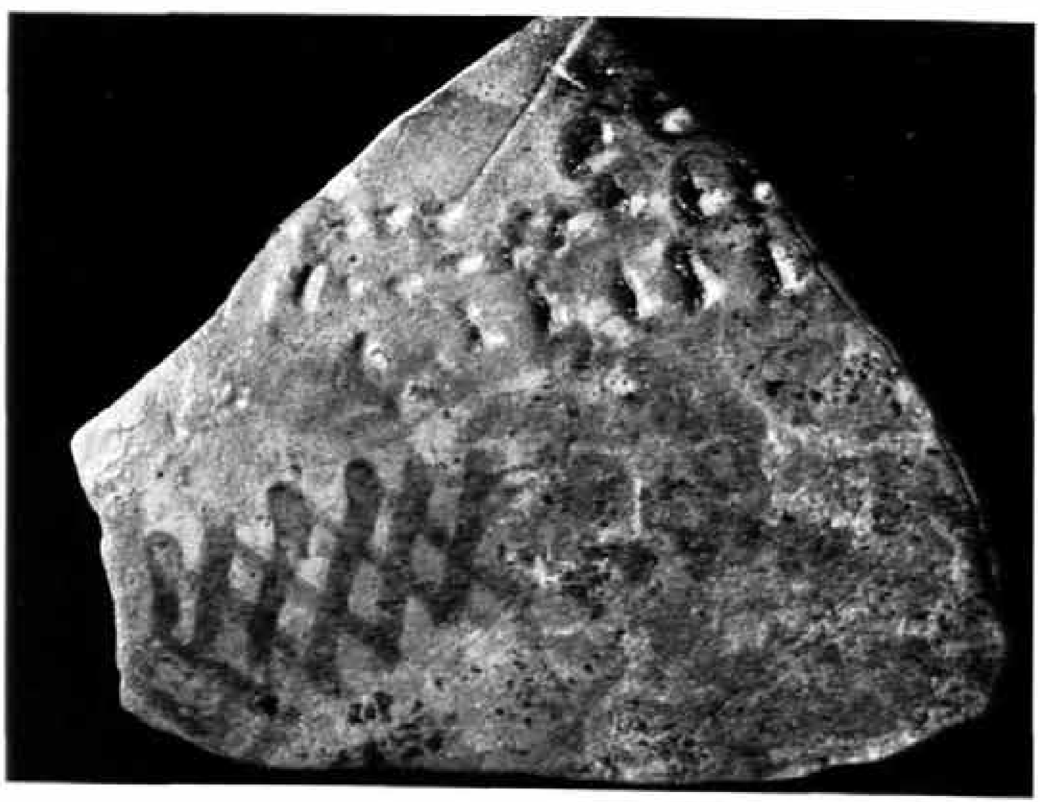


B

Saipai : A, *general view of the excavations* ; B, *pot forms of the Ochre Colour Pottery*. *See pp.* 46 *and* 47

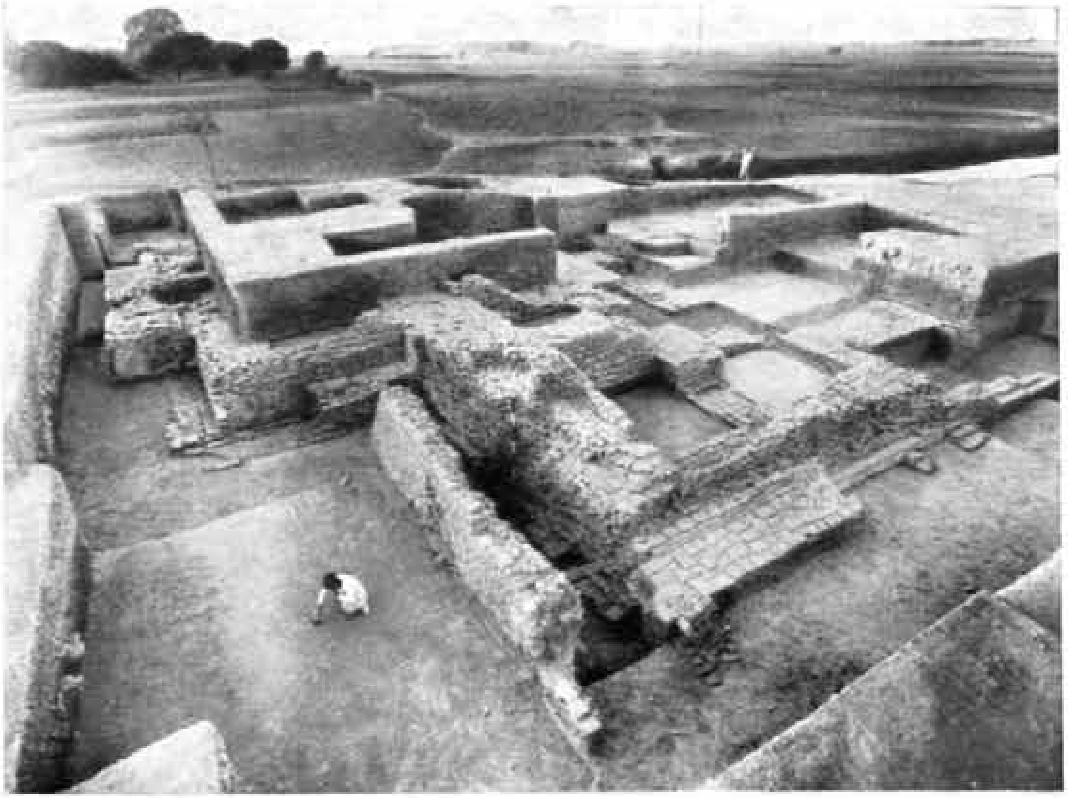


A



B

Saipai : A *and* B, *decorated pottery*. *See p. 47*



A

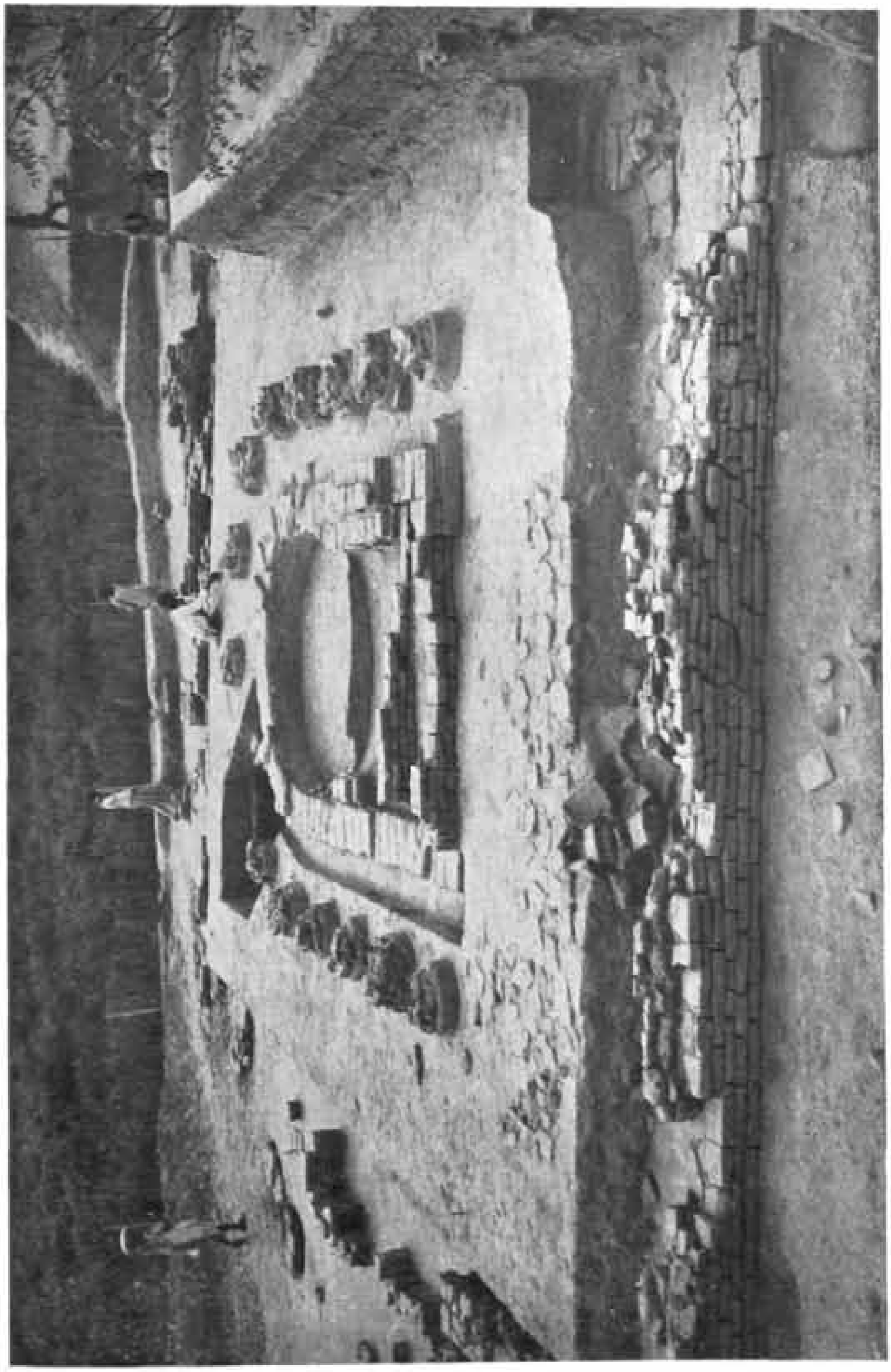


B

Bhitari : A, *exposed structures*; B, *different stages of construction*. *See p. 47*



Bhitari : damaged eastern wall. See p. 47



Sonkh : the apsidal temple. *See p. 48*



C

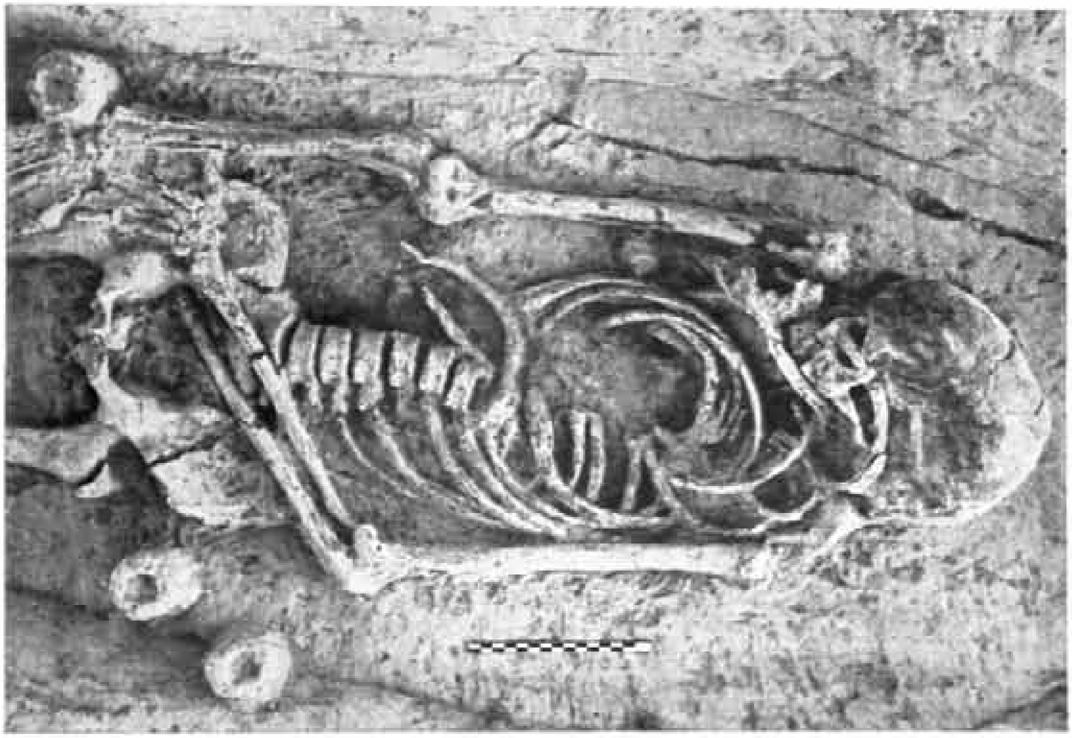


A

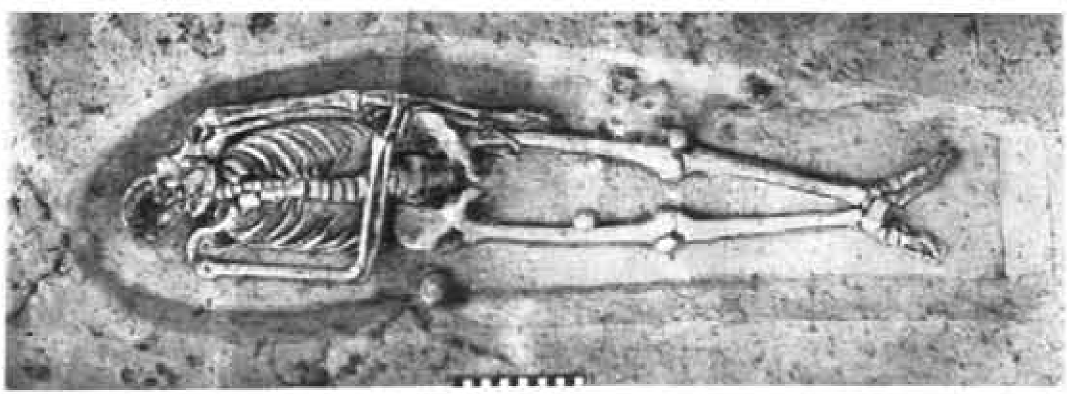


B

Sonkh : A, *architrave with makara and naga figures* ; B, *a naga scene* ; C, *salabhanjika bracket*. *See p. 48*



A

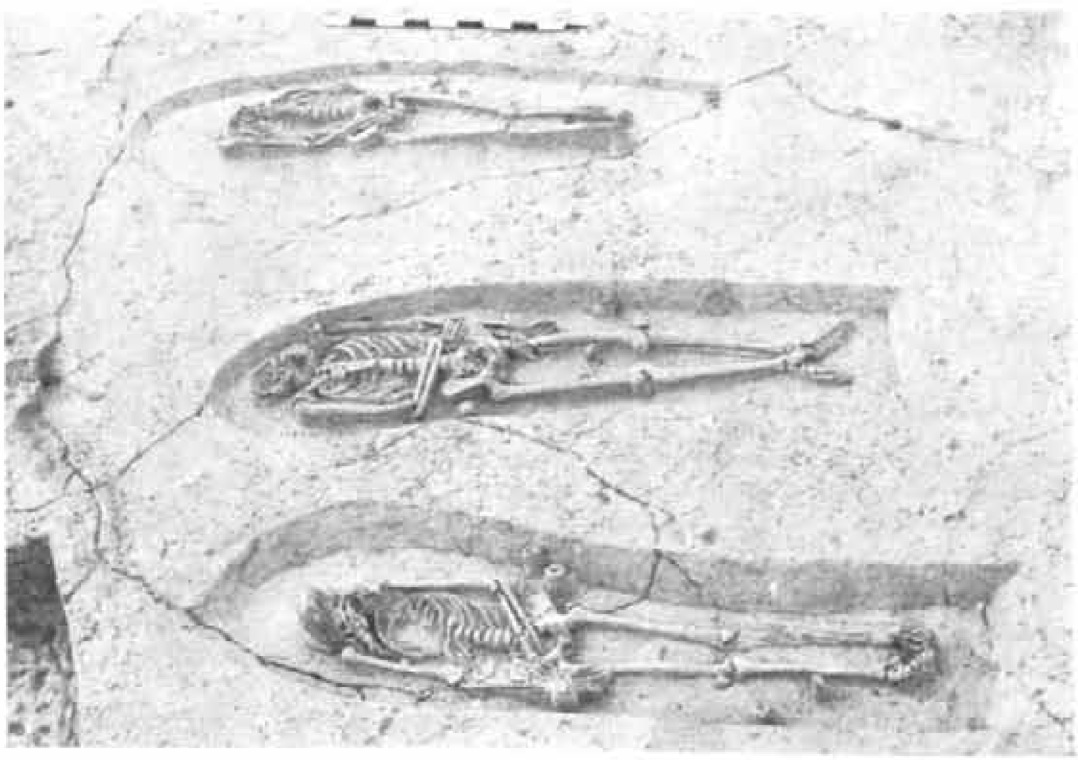


B

Sarai Nahar Rai : A *and* B, *excavated graves.* *See p. 48*

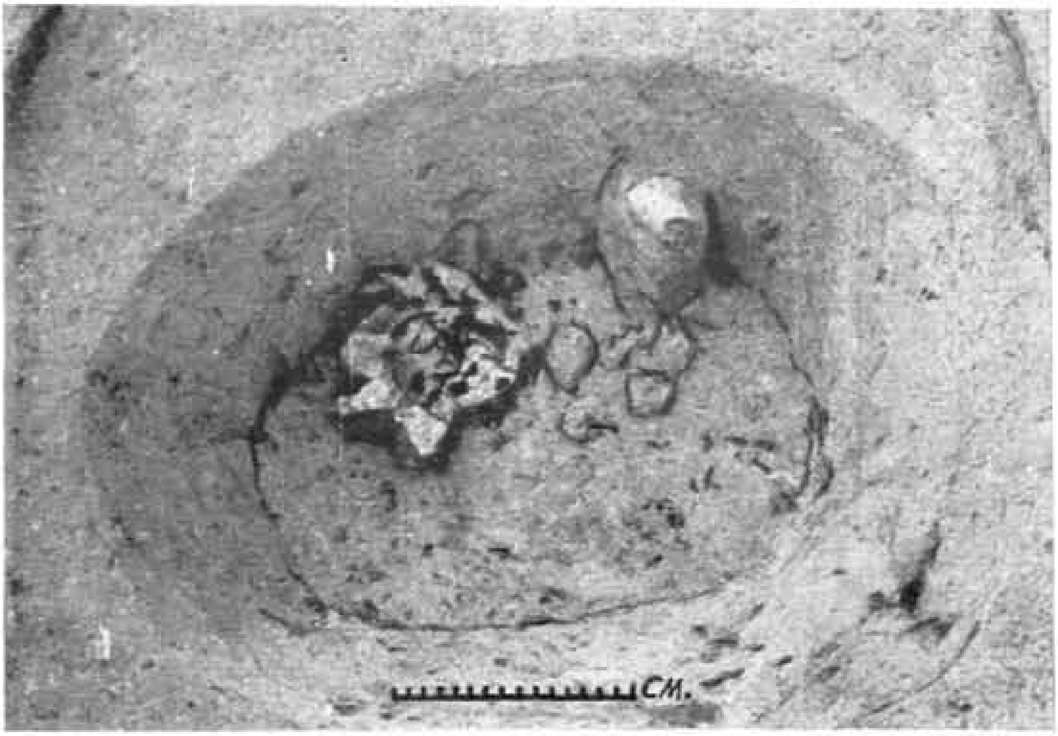


A



B

Sarai Nahar Rai : A and B, *excavated graves*. *See p. 48*



A



Sarai Nahar Rai : A. *hearth* ; B. *microliths*. *See p.* 49

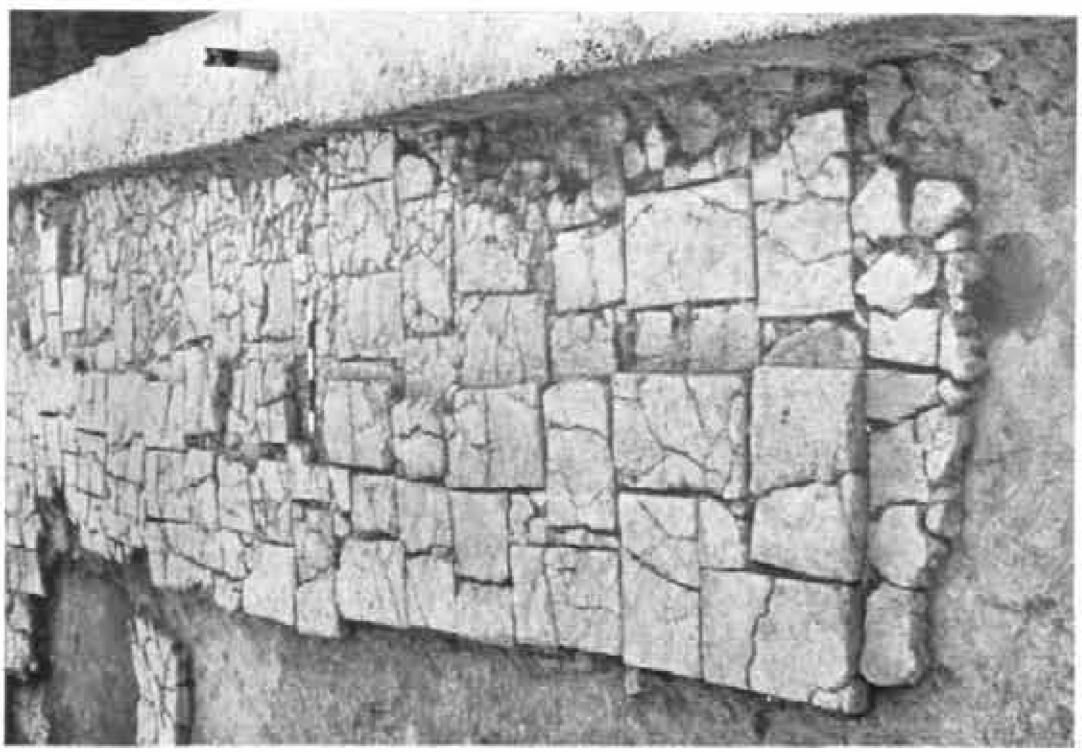


A



B

Takiaper : A, stone house-complex; B, detailed view of the rooms in the above complex. *See p. 49*



A



B

Takiaper : A, *remains of a room*; B, *stone seal, both from Period II.* *See p. 49*



A



B

Bharatpur : A, *exposed stupa*; B, *image of the Buddha in bhumisparsa mudra.* *See p. 50*



A



B

Rajbadidanga : A, *wall in Trench A-9*; B, *different phases of structures in Trench C-4*. *See p. 50*

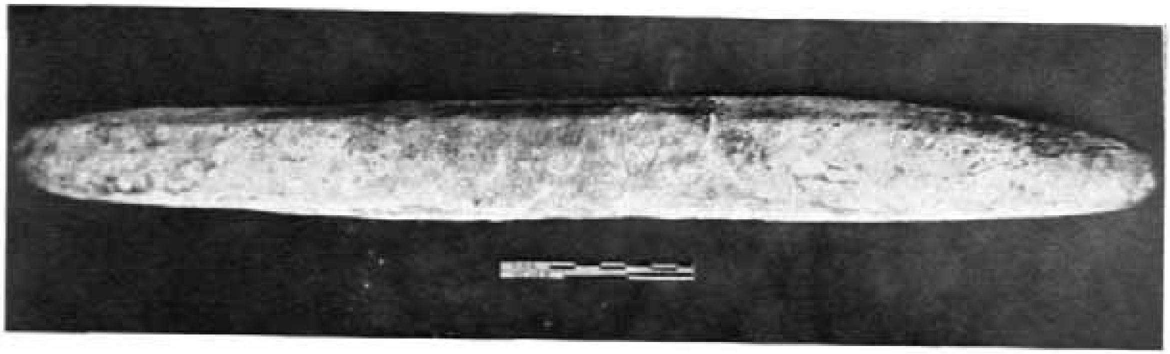


B



A

Rajbadidanga : A and B, *floors and structures of different phases.* *See p. 51*

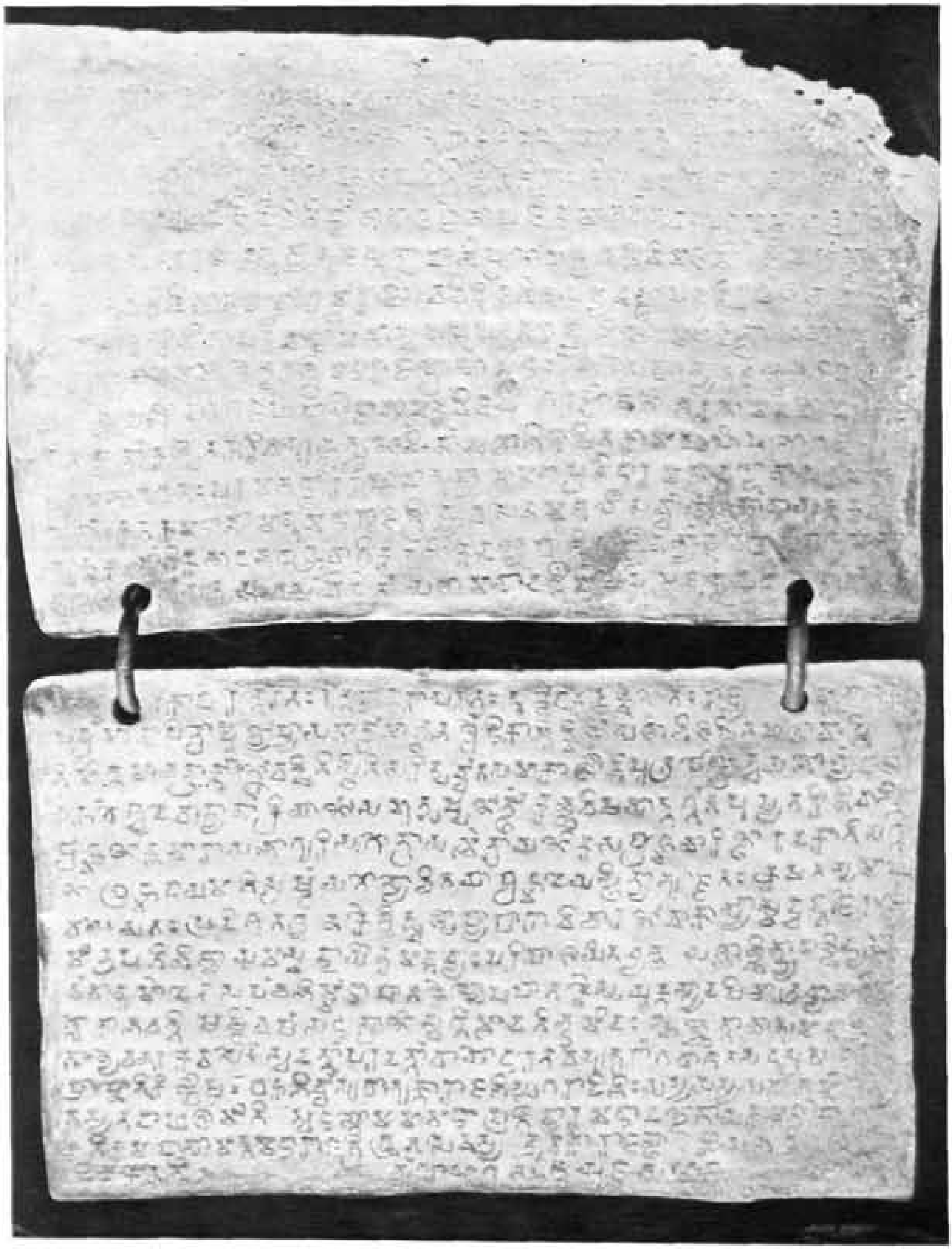


B



A

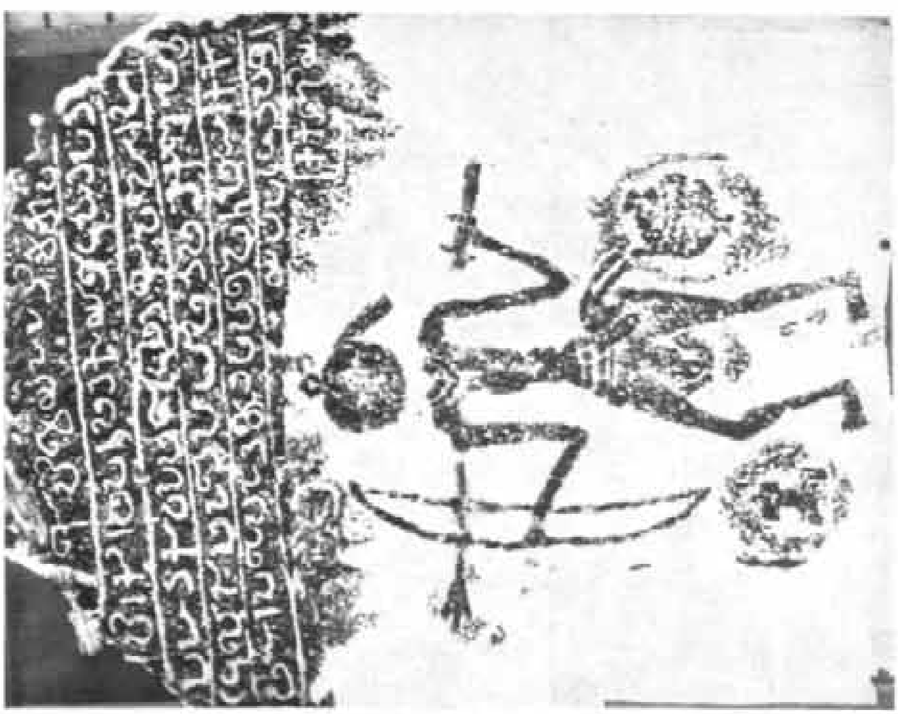
A, shouldered axe from a site close to river Patol; B, copper pick pick from Kulgam. *See p. 51*



Dhunada, District Rajkot : Copper Plate Charter of Dhruvasena I. See p. 53



B



A

Hero-stone inscriptions : A, *from Kilvandavadai* ; B, *from Kudalur*. *See p.* 59



A

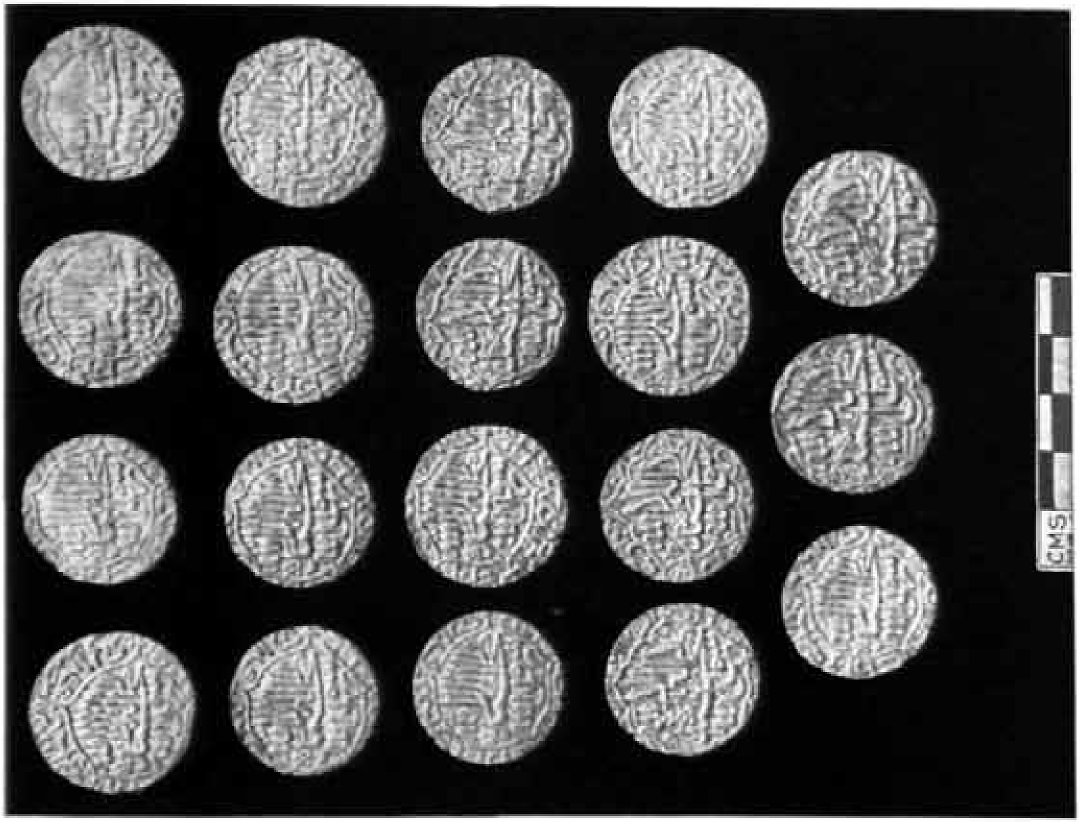


B

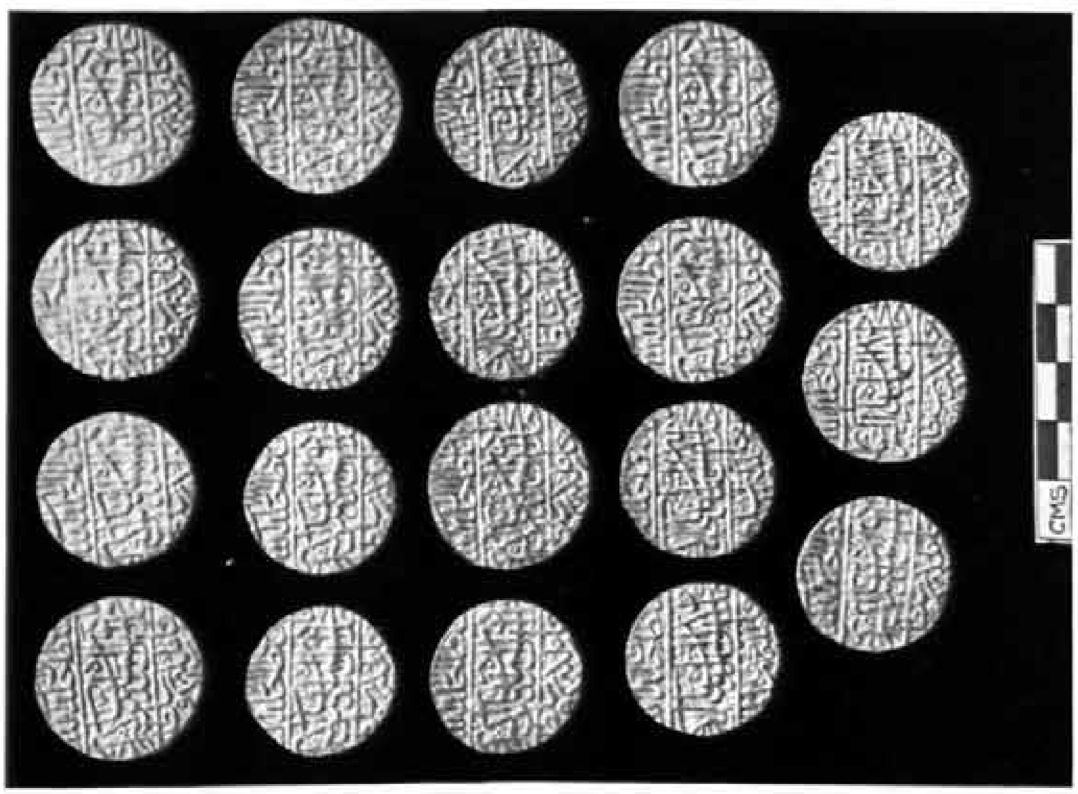


C

Gold coins : A, *from Boriwita*; B *and* C, *from Lakshmi Hatir Danga, obverse and reverse.* *See pp. 67 and 72*

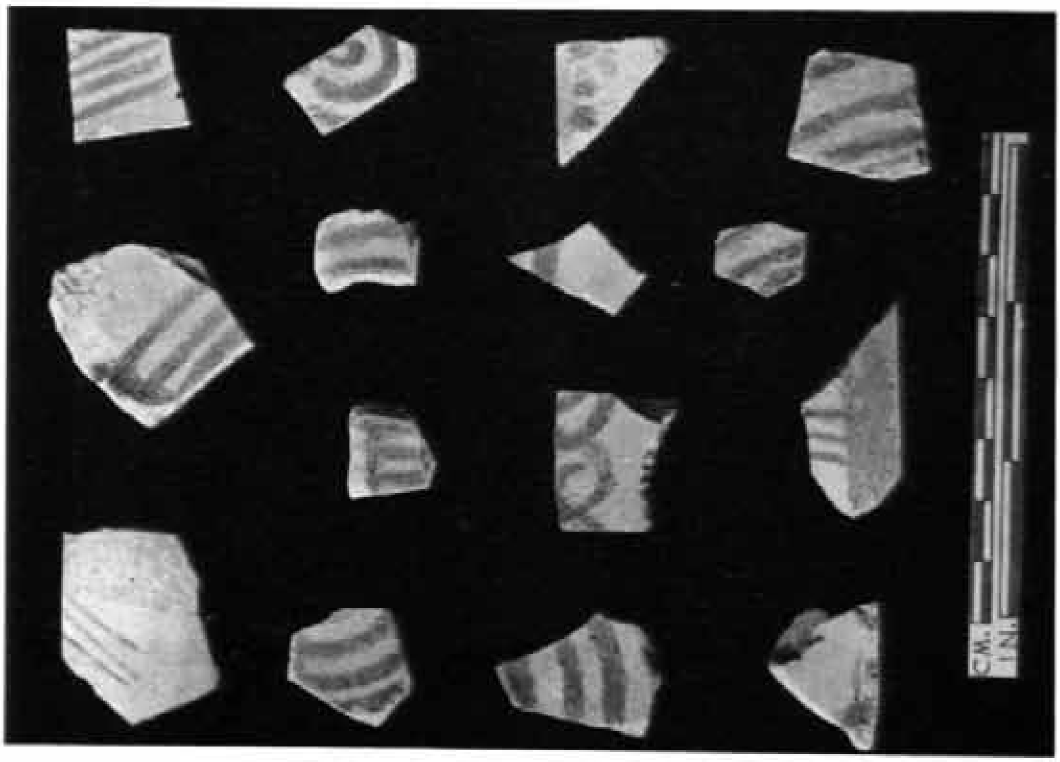


B



A

Jamalpur, District Ahmadabad : *Mughal coins*, A, *reverse and* B, *obverse*. *See p.* 67



B

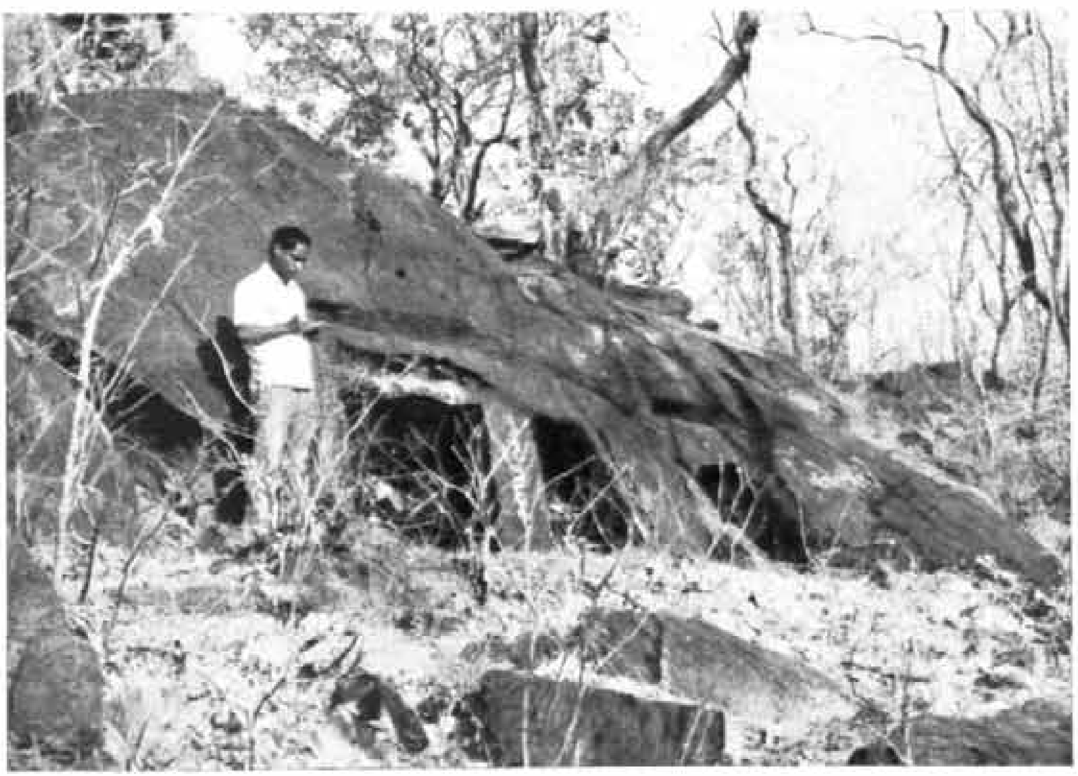


A

A, Arabic inscription from Masrur; B, Painted Grey Ware from Guuj. *See pp. 73 and 79*

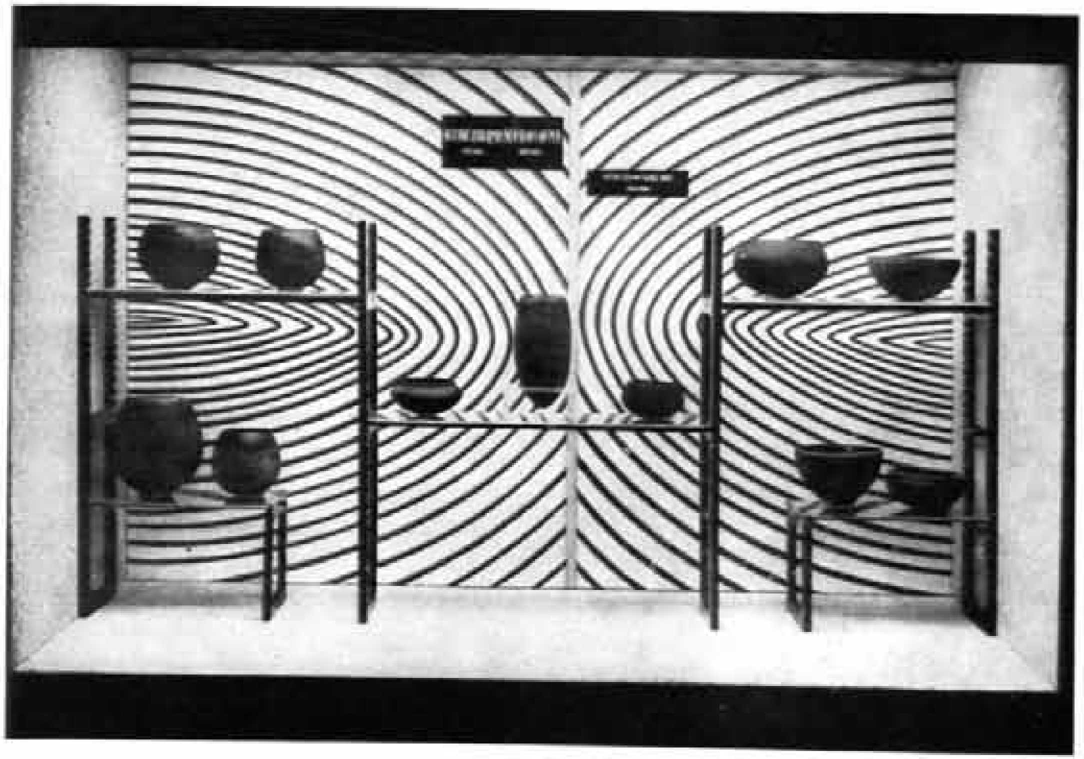


A



B

A, *Cave with inscriptions in Chandala Forest;* B, *rock-cut caves in Kithali Jungle.* *See p. 75*



A



B

Indian Museum Calcutta : A, *pottery in prehistory gallery*; B, *part of a gallery*. *See p. 90*

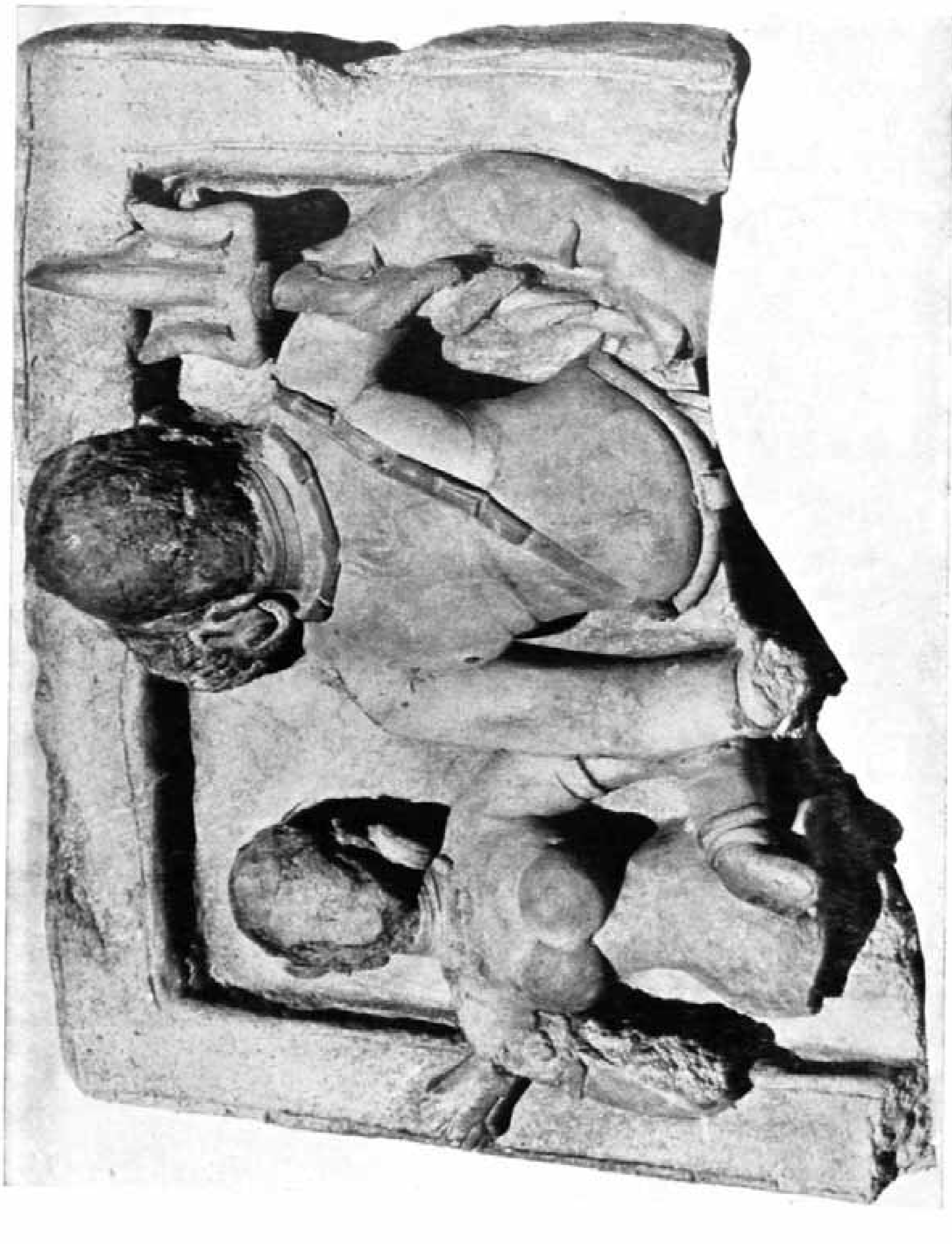


A



B

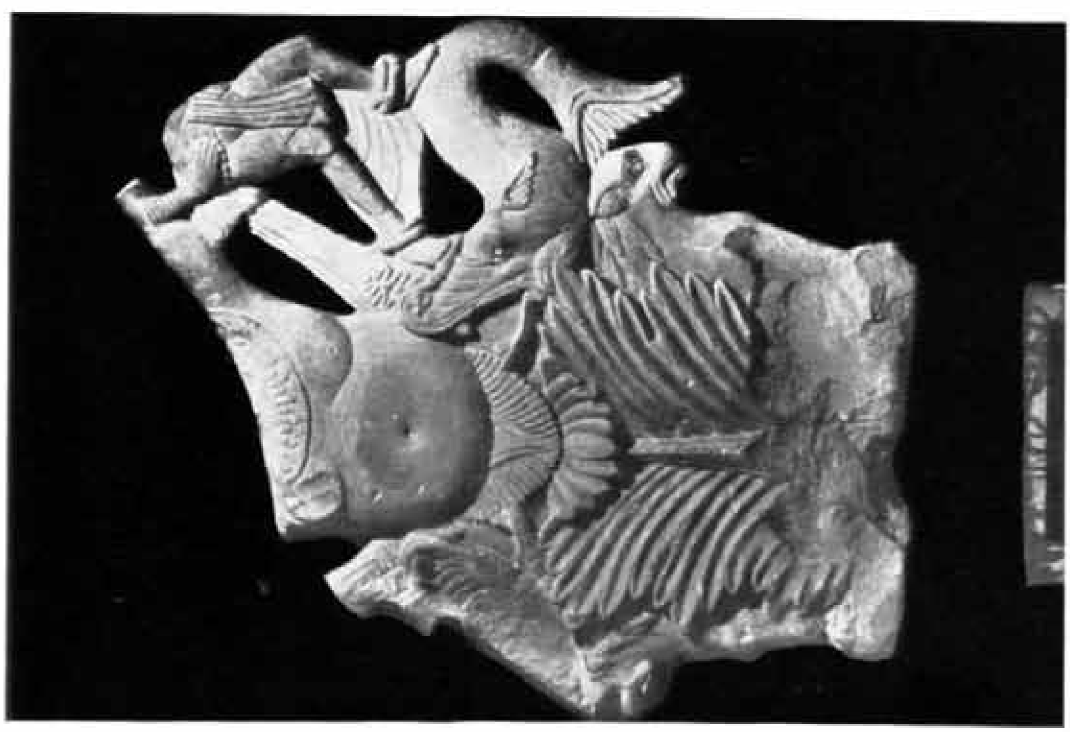
A, *Indian Museum, Calcutta, Salabhanjika;* B, *National Museum, New Delhi, Vishnu.* *See pp. 89 and 95*



State Museum, Lucknow : terracotta panel, Siva and Parvati. *See p. 93*

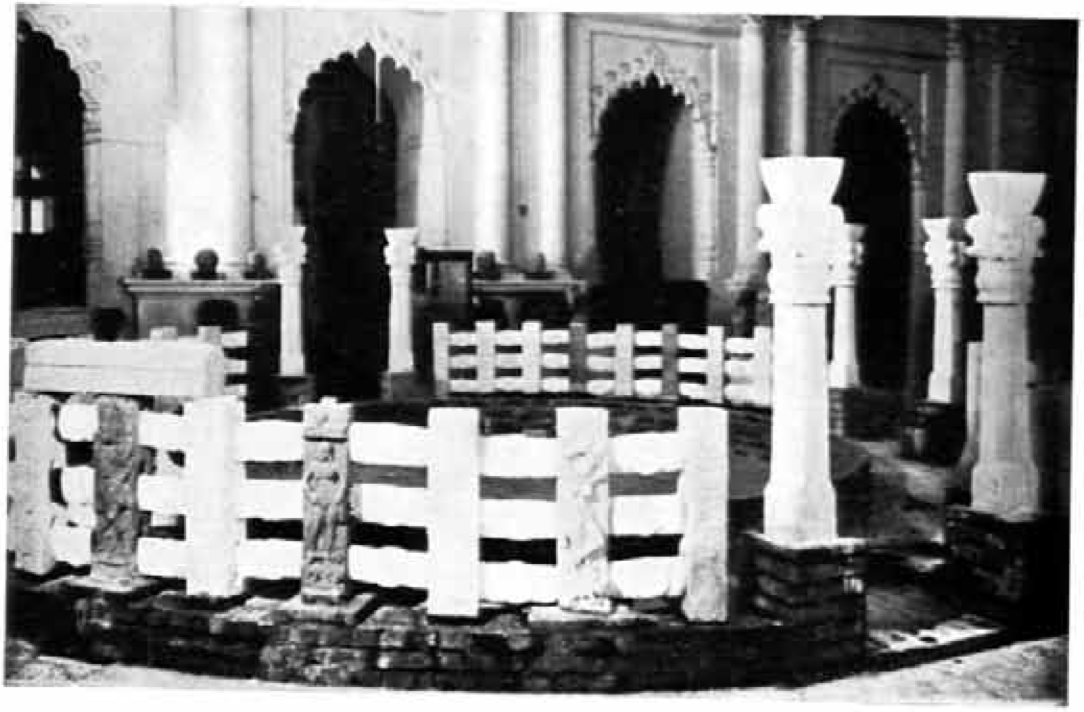


B



A

Archaeological Museum, Mathura : A, Capital ; B, image of the Buddha. *See pp. 94 and 95*



A



B

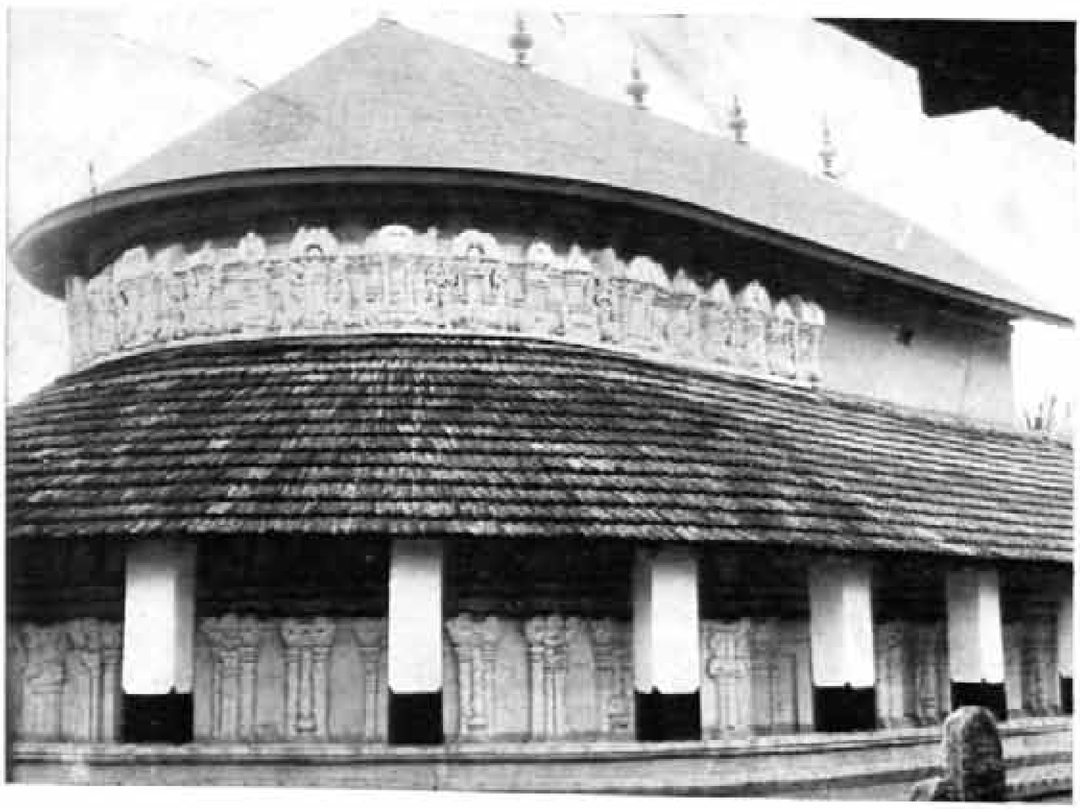
A, *State Museum, Lucknow,* A, *model of Jain stupa;* B, *Museum and Picture Gallery, Vadodra, Siva in Sculpture and painting.* *See pp. 93 and 98*



Museum and Picture Gallery, Vadodra : Stone image of Lakshminarayana. *See p. 97*

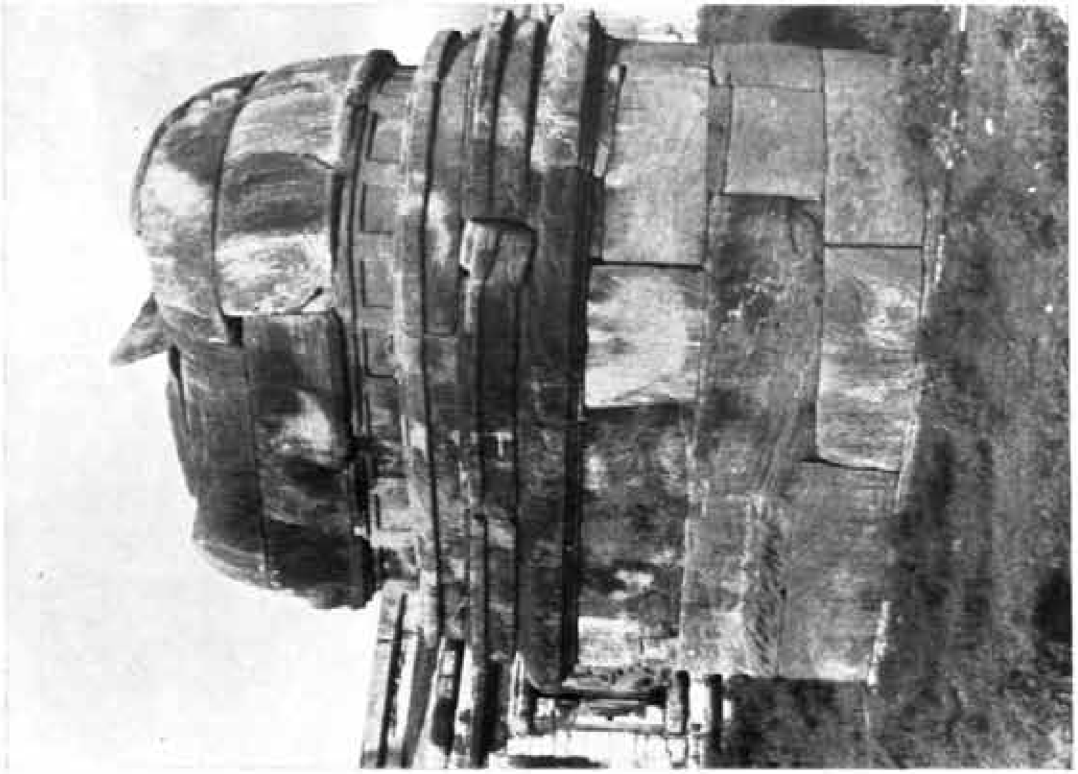


A

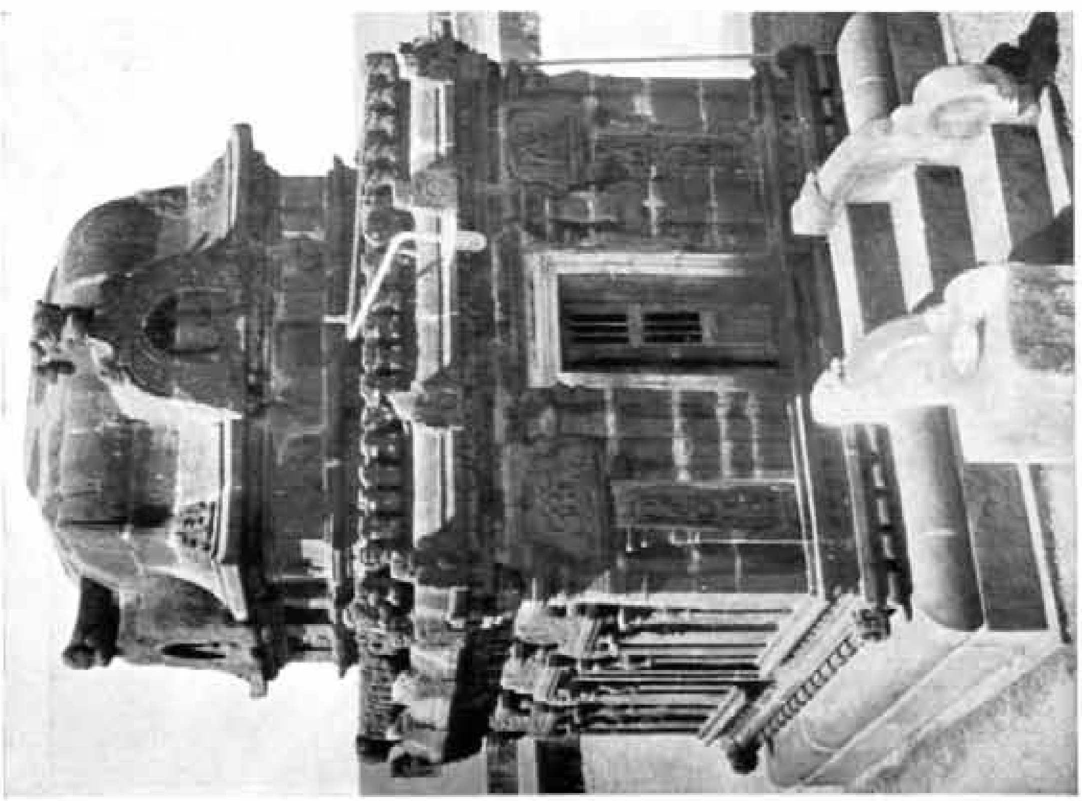


B

A, *Ketapai Narayana Temple, Bhatkal*; B, *Kotesvara Temple, Kota.* *See pp. 99 and 100*

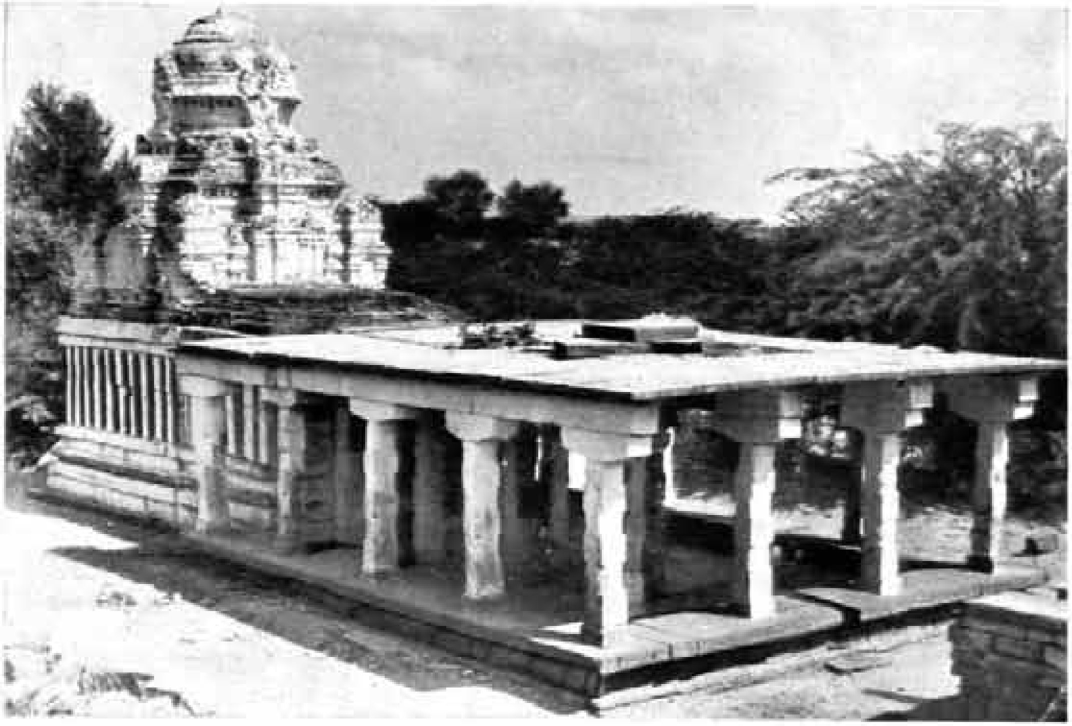


B



A

A, *Ganesa Shrine, Ullal*; B, *Ramalingesvara Temple, Satyavolu.* *See p. 100*



A



B

A, *Virmana of Chennakesva Temple, Veludurti*; B, *Ganesa Shrine, Chilamkuru.* *See p. 101*



A



B

Somaskanda panels : A, *from Tiruppangili*; B, *from Takkolam*. *See p.* 102



A

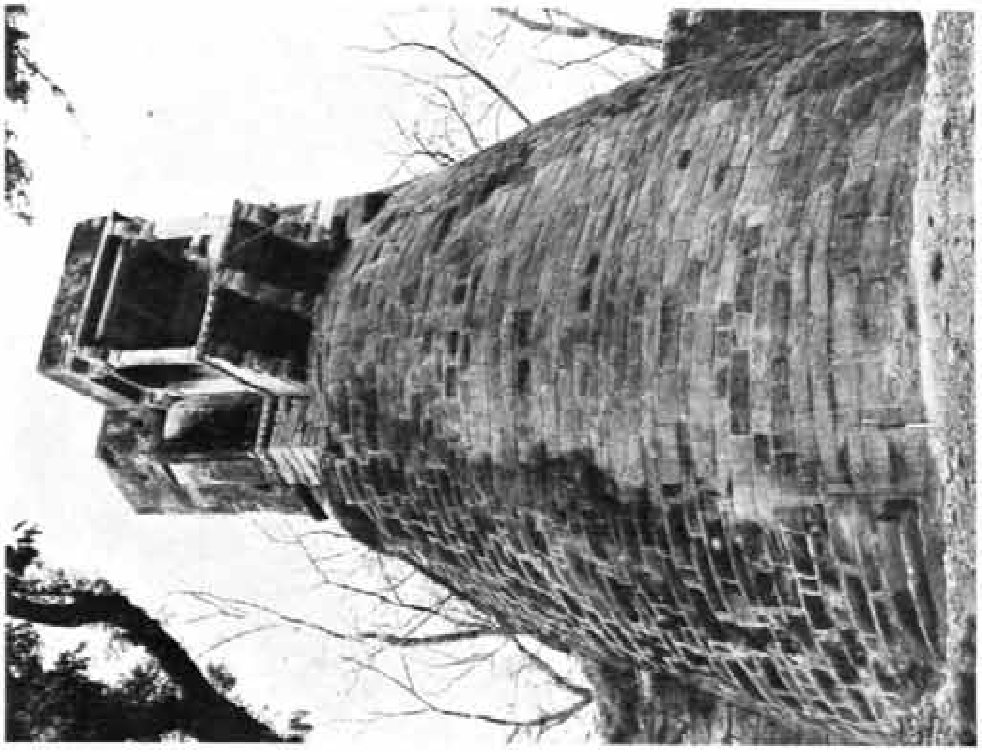


B

Babore : Dera Temple, A, before and B, after conservation. *See p. 107*

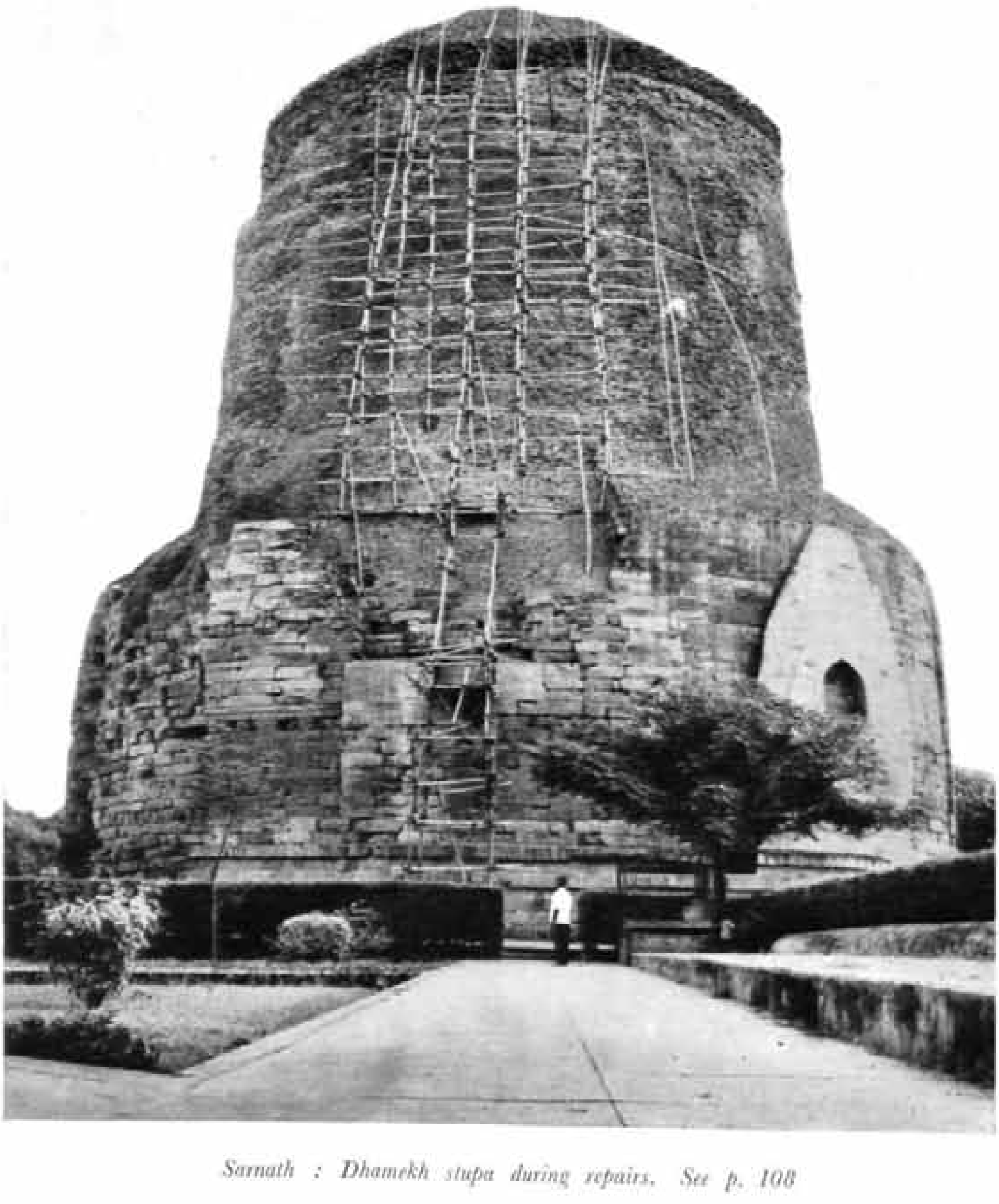


A

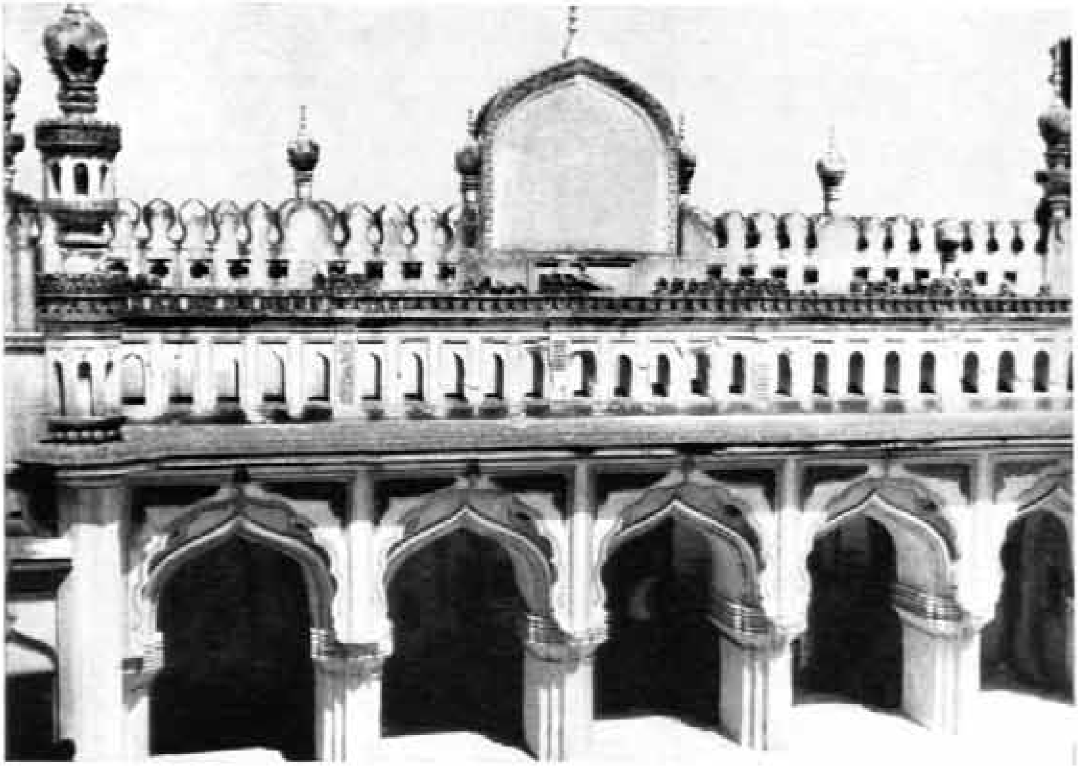


B

Jaunpur : bastion of the Shahi fort, A, before and B, after conservation. *See p. 108*



Sarnath : Dhamekh stupa during repairs. See p. 108

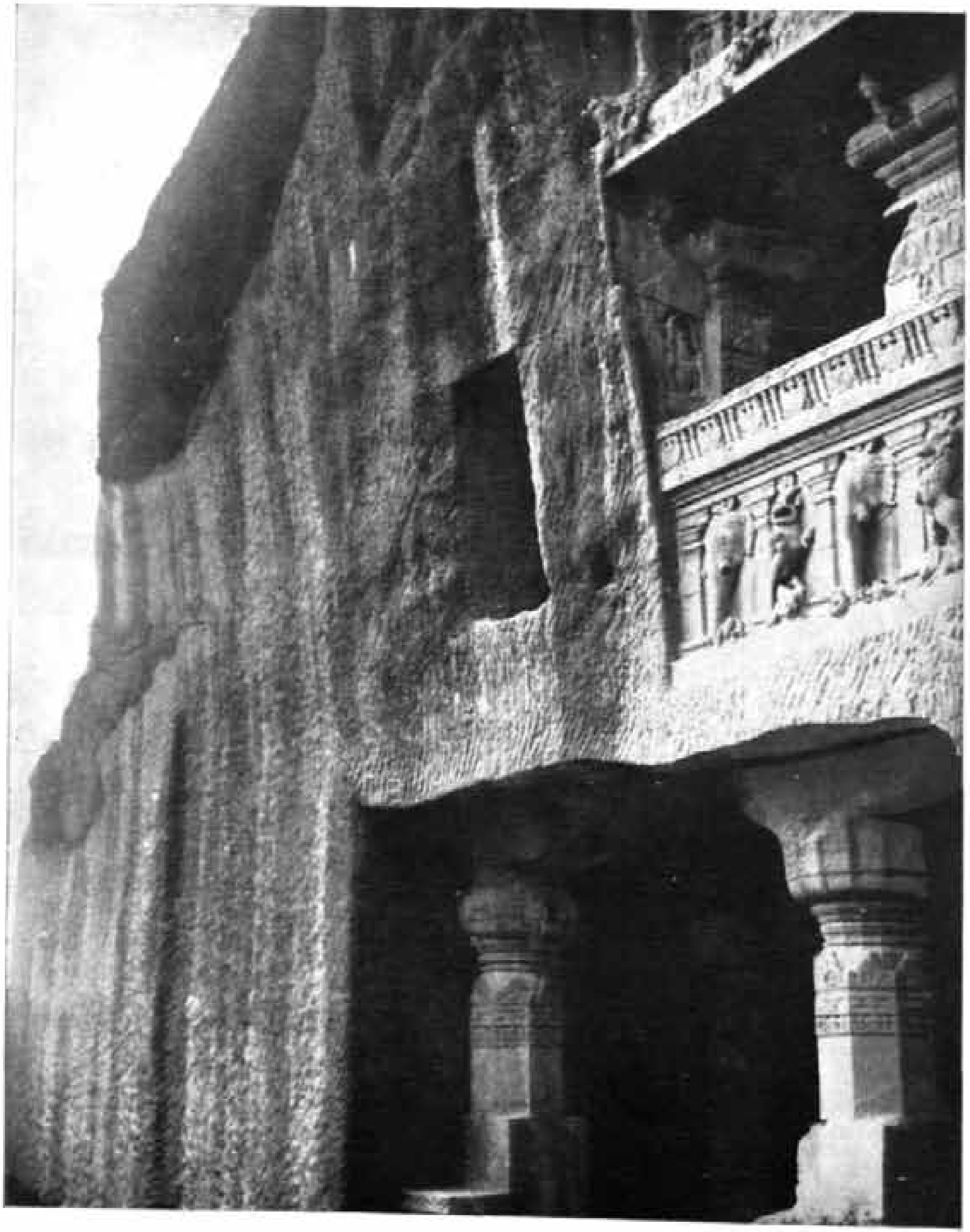


A



B

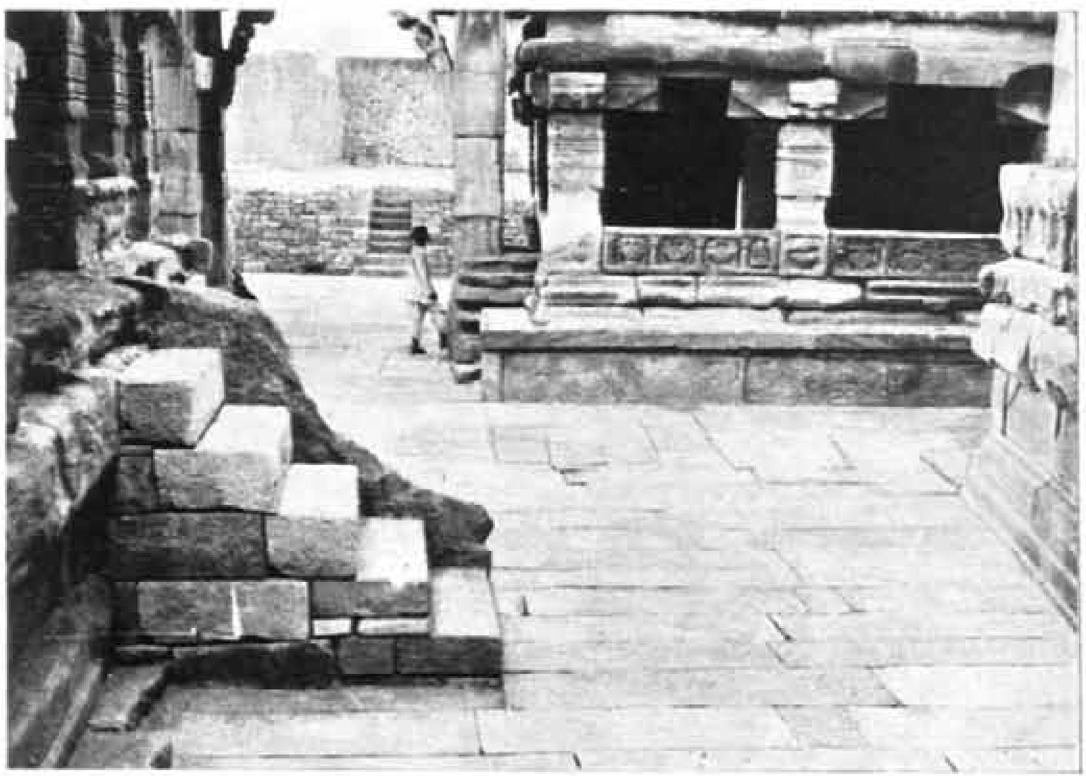
Hyderabad : damaged frieze of Charminar, A, before and B, after conservation. *See p. 113*



Ellora : Cave no. 32, after conservation. *See p. 114*



A

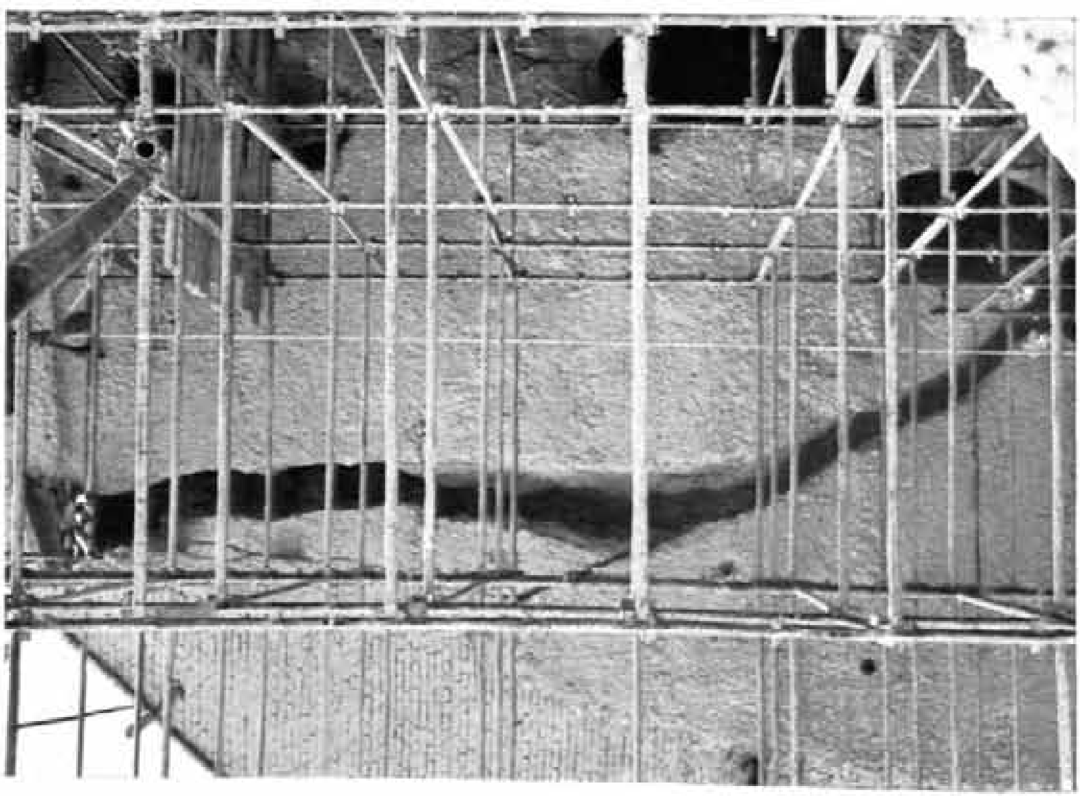


B

Aihole : A, *Durga Temple during repairs*; B, *Kunti Temple after repairs.* *See p. 116*



A



B

Bamiyan, Afghanistan, Shrine of the Small Buddha : big crack in the wall, A, *before and* B, *after conservation* *See p. 125*



A

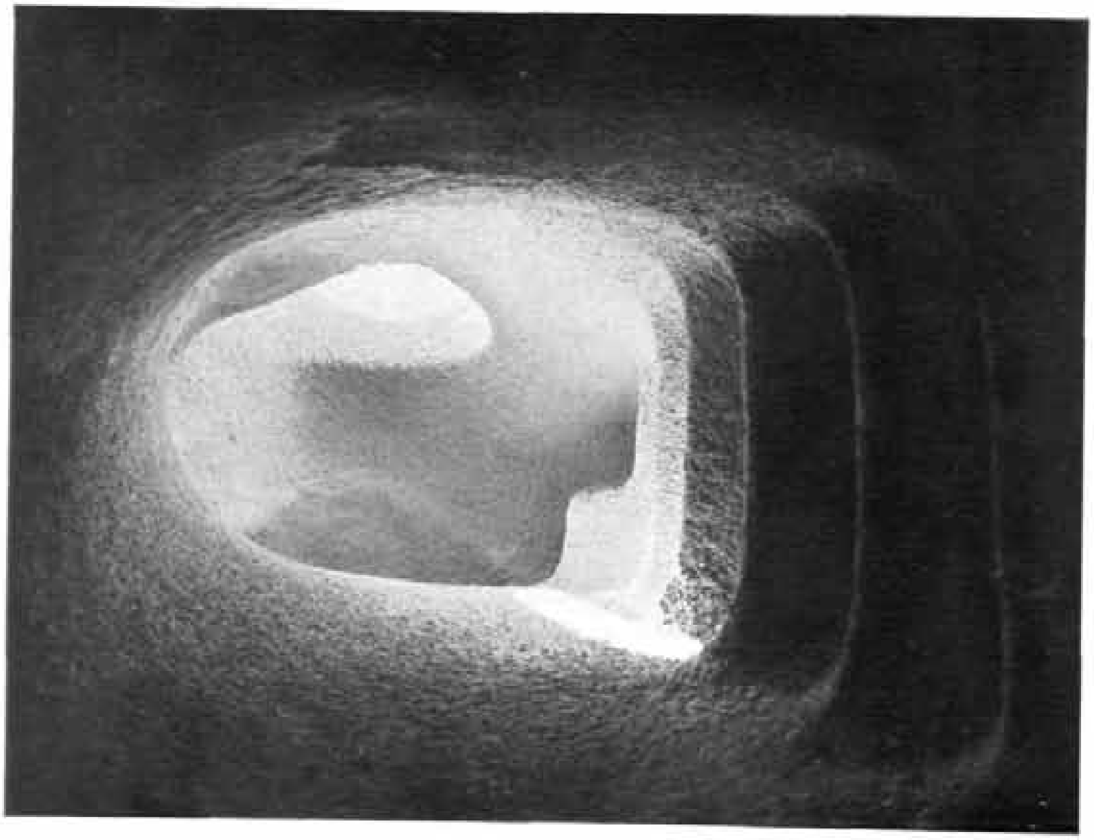


B

Bamiyan, Afghanistan, Shrine of the Small Buddha : cracked floor, A, *before and* B, *after conservation.* *See p. 125*



A



B

Bamiyan, Afghanistan, Shrine of the Small Buddha : damaged steps, A, *before and* B, *after repairs.* *See p. 125*



A

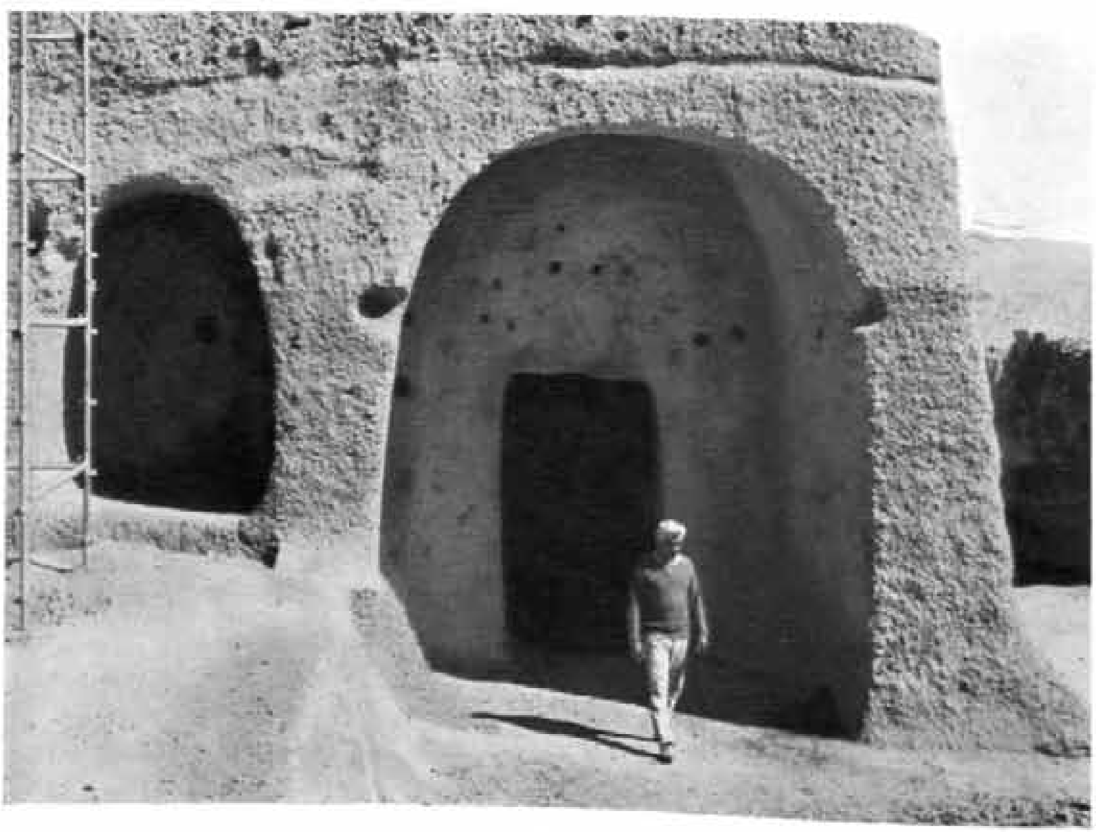


B

Bamiyan, Afghanistan, Shrine of the Small Buddha : missing domical roof, A, before and B, after repairs. *See p.* 125



A



B

Bamiyan, Afghanistan, Shrine of the Small Buddha : outer edge of verandah, A, *before and* B, *after conservation.* *See p. 125*





A B

Bamiyan, Afghanistan, Shrine of the Small Buddha : damaged steps leading to the shrines, A, before and B, after conservation. *See p. 125*



A

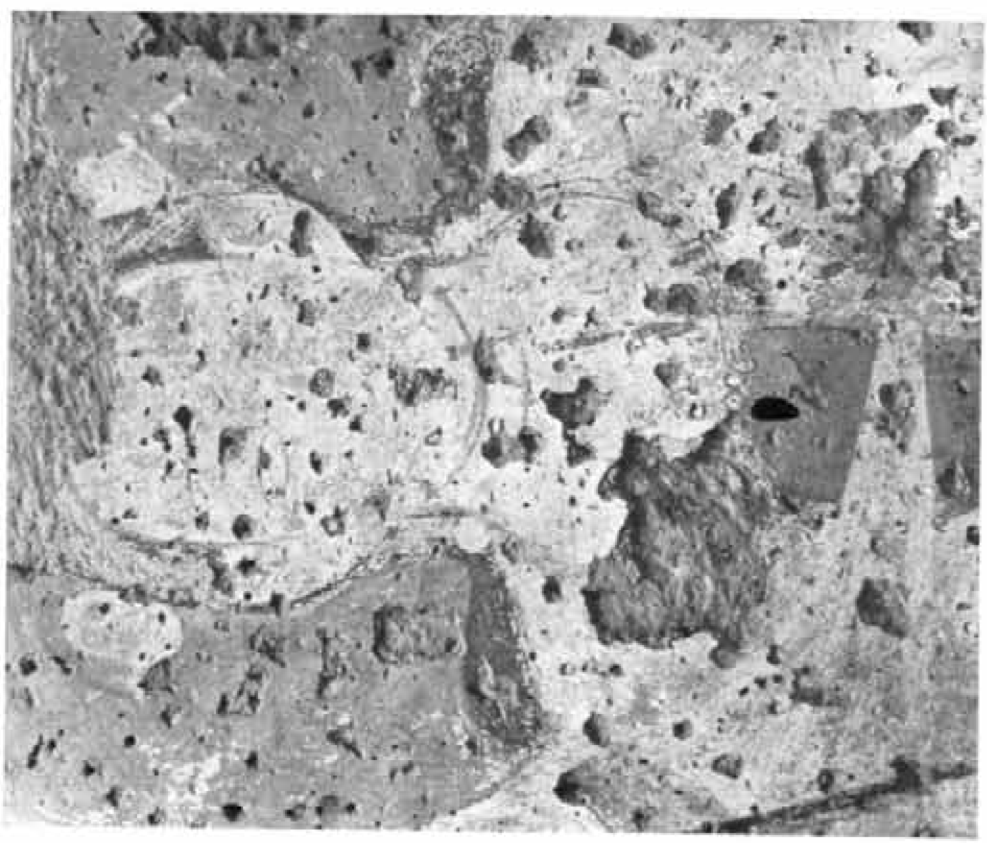


B

Bamiyan, Afghanistan, Shrine of the Small Buddha : paintings in cave no. 11, A, before and B, after preservation. *See p. 126*

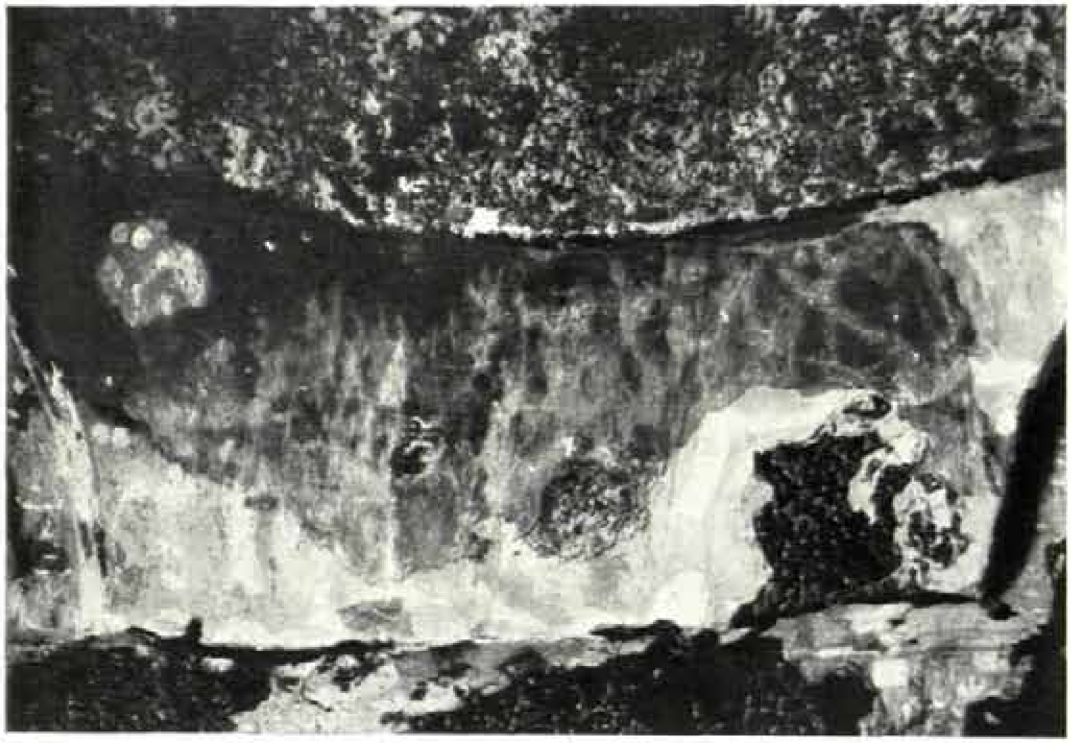


B



A

Bamiyan, Afghanistan, Shrine of the Small Buddha : Sun god, A, before and B, after preservation. *See p. 126*



A



B

Bamiyan, *Afghanistan, Shrine of the Small Buddha : paintings in Cave no. 2*, A, *before and* B, *after preservation*. *See p. 126*



A



B

Bamiyan, Afghanistan, Shrine of the Small Buddha : attendant of Sun God, A, before and B, after preservation. *See p. 126*